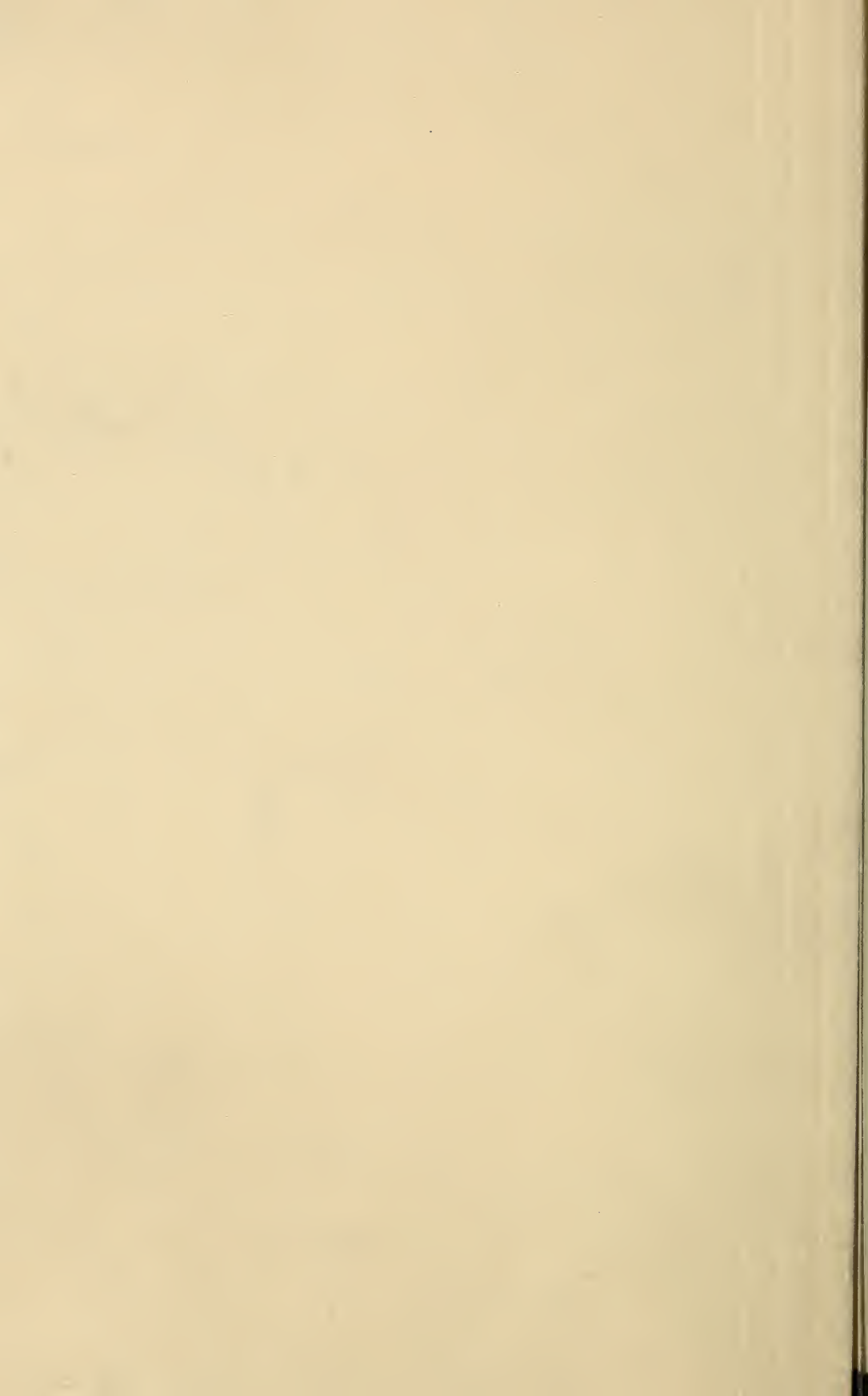


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V. 21 # 10

GLEANINGS

A JOURNAL DEVOTED
TO BEES,
AND HONEY,
AND HOME
INTERESTS.

BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY
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Vol. XXI.

MAY 15, 1893.

No. 10.

STRAY STRAWS

FROM DR. C. C. MILLER.

ARE YOU PLANNING to come to Chicago next October?

TALLY ONE more in the line of improvements. That \$3.00 rig on p. 349, to allow common people to use steam without owning a steam-mill.

AMONG PICTURES of prominent bee-men in *Schweizer Bienenfreund* is one of A. J. Root, looking wonderfully like our old friend A. I.

DANDELION-BLOSSOMS were half open April 17, and the same blossoms are half open May 5. Guess they wish they hadn't started so soon.

THE BEST MUCILAGE to fasten labels on glass, according to *Schweizer Bienenfreund*, is the white of egg beaten to a froth and then allowed to settle.

I'VE BEEN READING the new edition of Simmins' Modern Bee-farm, and it seems like a live bee-keeper in his shirt-sleeves telling how he does.

IF NOT SURE whether to say "apartment" or "department," better say "apartment," for nine times out of ten that's the one meant in bee-keeping.

NUCLEI is the right word to use if you mean more than one nucleus; but "nuclei" is never an adjective, so don't say "nuclei hives," but "nucleus hives."

THERE'S A LESSON for those who want to tinker with weak colonies, on p. 341, where Harbison doubled down 62 colonies to 50 when 12 colonies meant \$1200.

FRIEND POWDER, on p. 351, is after nearly the same cover I've been studying on—a closed box $\frac{3}{8}$ in. deep, of $\frac{1}{2}$ -in. stuff, as nearly air-tight as possible, covered with tin.

STIMULANTS are among the things I don't use at all—don't believe in 'em. But there's something very stimulating in that talk on p. 360. Good for you, Bro. Root.

COWAN INSISTS that there is no white wax made by bees; but that if we take that which looks white and lay it on white paper the yellow tint will be plainly seen.

IF YOU MOVE a hive from its stand temporarily to manipulate it, put an empty hive in its place for the flying bees to fool around in, instead of going into other hives to be killed.

CALIFORNIA AND FLORIDA produced more honey in 1892 than there ever was consumed in America during any one year up to about ten or fifteen years ago.—C. F. Muth, in *A. B. J.*

CLIP THE WING of a newly bought queen, at least enough to mark her; then if she disappears and another takes her place by any means, you'll not blame the queen-dealer for cheating you.

THE DZIERZON THEORY should be thoroughly understood by every one who desires to be an intelligent bee-keeper. I'm led to say this from seeing the theory ridiculed by one signing M. D. to his name.

THE FRENCH *Revue* occupies a page in telling how John Hammond, Dadant's colored man, found his mother after 38 years' separation. It gives a hint as to the esteem in which Dadant is held in France. And John deserves it.

"IT IS, SO FAR, doubtful whether honey-producing alone, except under particularly favorable conditions, will ever become a reliable source of income."—A Modern Bee-farm. There's honesty for you, anyway.

TIN JOINTS for making a hive-cover of two pieces water-tight are a delusion. I have a number of them; and as they grow older they grow badder. For a hive-cover 14 inches wide, give me a single board every time.

I BELIEVE in patents, but there's one trouble about them. A patent on an article doesn't leave you quite so free to discuss the merits of the article. Any unfavorable criticism is likely to be considered a personal attack on the patentee.

THAT "85" with a string of ciphers after it at the bottom of p. 363 makes one open his eyes; but it also awakens a feeling of gratitude that nowadays human lives are considered too valuable to use up so many of them in a thing of that kind.

THE CHIEF HINDRANCE to the development of apiculture in France, says a writer in *Bulletin*, is the price of movable-comb hives. While a box hive costs 40 or 50 cents, a movable-comb hive costs \$4.00 or more. Better send over a cargo of Dovetails, Bro. Root.

SMOKER FUEL. L. Highbarger sent me some cotton waste, such as they use in axle-boxes of railroad cars. I think it had already been used in axle-boxes. It makes a dense smoke, holds fire well, and lasts well. It may be a little bad about creosote, but on the whole it is, I think, quite an acquisition.

I HOPE those who have A. I. Root in charge will not turn him loose at the World's Fair, till he changes his belief that "such acts of highway robbery are mostly confined to individuals who have thoughtlessly exhibited money," etc. (p. 359). He might stray into some of the streets where the thugs and thieves are not so discriminating.

THAT "GETTABLE" business on p. 362 is good; but if you're hitting at me it would be better to tell me privately. But I do try. I'll tell you how I do generally. Before sending any thing off, I try it on my folks. If they hesitate about understanding, I don't explain, but change it till they do understand.

WHY DON'T you make a bag-holder, friend Root, instead of wearing out that little girl's elbow (p. 359)? If you can't do any better, put two hooks in the wall to hold the bag in two places, then one hand will do the rest. But to make a bag-holder of a little girl! The idea! Next you'll be making a man get down on all fours to use him for a step-ladder.

"THIS SPRING isn't so very bad, and it isn't so very good. Up to April 20 we've had few days for bees to fly." That's what I said last number. Since that spring has just humped itself to show that it was no milk-and-water affair. April 20 started in for a two-days' snowstorm, and then it continued cold, wet, and windy. May 3 was the first day for bees to fly, and I'm almost afraid to count up how many colonies I have left.

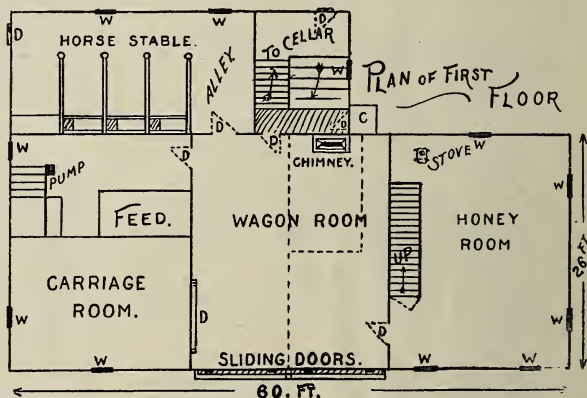
ELWOOD'S MAMMOTH BEE-CELLAR.

A REPOSITORY WHERE 1300 COLONIES ARE WINTERED SUCCESSFULLY; NECESSARY REQUISITES FOR WINTERING; ARTIFICIAL HEAT AND VENTILATION.

When the editor of GLEANINGS visited us two years ago he requested that a photograph be taken of our premises after the bees were gathered in from the out-apiaries. The accompanying view, which has been waiting "copy" for more than a year, is a reproduction of this photograph. The artist endeavored to get a front instead of a side view, but the lay of the land prevented. Nearly half of the whole number of hives are not shown. By going upon a hill a short distance away, the whole might have been included; but the hives would have appeared too small and indistinct. The permanent home yard does not appear in the picture, being located in the back part of the orchard, the fore part of which is seen in the left side of the picture, and is about fifteen rods from the buildings. It was put there to get the protection of a natural windbreak, and is as near the house and barn as I care to have it. The outyards also, to prevent annoyance, are all located some distance away from buildings. The home yard is managed the same as the other yards, and is looked over but once in a week or ten days. The cart shown in the picture is used in working this yard. Supplies for the out-apiaries are carried in a wagon which is driven up as close to the bees as possible, and left there during the day. As will be noticed, the rows of hives are irregular, which is an assistance to the bees in locating their own hives. For the same reason, it is preferred that, in spring and fall, the hives tip in conformity to the ground unless such irregularity cause the hives and comb to lean much sideways. It is not well to allow combs to bulge, as such never become perfectly true again.

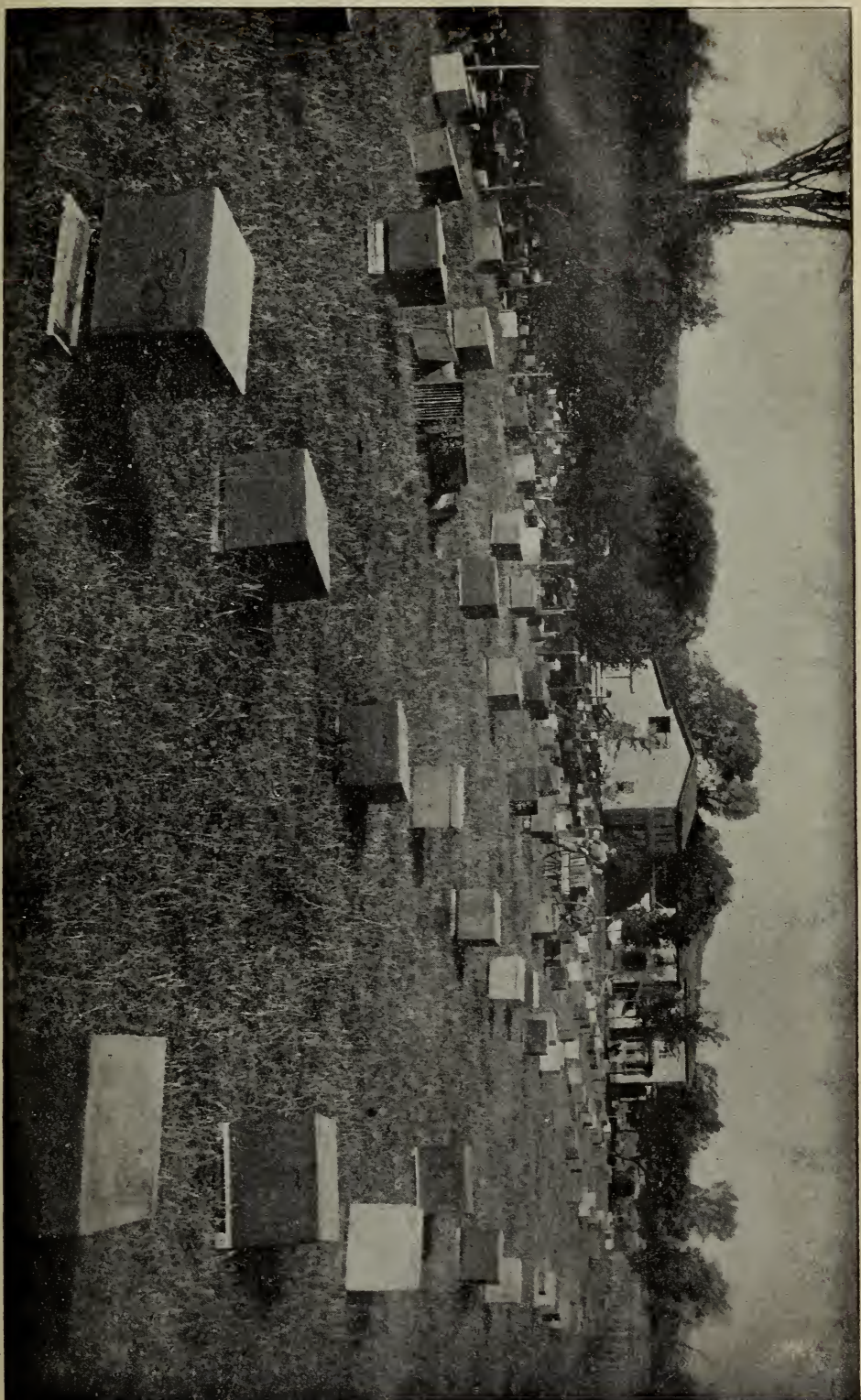
The large building is a combined barn, wagon-house, and honey-house, with a bee-cellar under the whole, except under the part occupied by the horse-stable.

The second story has a stove-room over the honey-room, a shop over the wagon-room, hay-mow over the carriage and feed rooms, and a straw-mow over the horse-stable. The cellar is divided in the middle by a partition that can be closed when putting in or taking out bees, and has an ante-room, as indicated by the dotted lines in the wagon-room. There is a well in one corner, with a pump up in the feed-room. It would be an improvement to put in an elevator at the foot of the honey-room stairs, running to the second story, and by means of a trap-door down into the cellar. The bees are now taken in and out of the cellar from the back (or west) door, down three steps. A heavy bank of earth nearly up to the sills protects the back side of the cellar. The front side is in a bank. There is a good drain from the cellar, and in addition there is a line of tile a foot in diameter extending out about a hundred feet, where there is an opening. From this point, for another hundred feet, the size is 8 inches. This is a fresh-air tube, and is always open. In a very wet time it also acts as a drain; and once during a spring freshet it paid for itself several times over by a few hours' drainage. A large chimney, with three flues, runs from the cellar up. The middle flue is for smoke; the outside ones, one foot by one and a quarter feet each, are for ventilation. There is always a good draft up, but it can be materially improved in muggy weather by building a fire in the shop stove. There are double outside cellar-doors. The inner one is largely of wire cloth, for ventilation when the outside door is open. There are also openings in the floor over the cellar, for ventilation. At no time during the severe winter, just past have the ventilators been wholly closed. One night, with the temperature at zero, the ventilators were too far closed, and the next morning the temperature of the cellar had risen to a dangerous point. Formerly a stove in the ante-room kept the temperature up to 45 degrees; but now the increased number of bees makes a stove unnecessary for this purpose. The amount of moisture in the



PLAN OF ELWOOD'S HONEY-HOUSE AND BARN (FIRST FLOOR).

air is as important as the temperature. The best results were obtained when a fire was built in the ante-room stove regardless of temperature, whenever the hygrometer showed the air nearly approaching the point of saturation. The same results are now sought for by increasing the ventilation; but occasionally the plan fails; for when the air is saturated, and above freezing outside, it does not become dry enough when it reaches the slightly higher temperature of the cellar. The cellar will hold comfortably



APIARY AND RESIDENCE OF P. H. ELWOOD, STAIRVILLE, N. Y.

Hives ten feet apart in row. Rows ten feet apart. One hive facing south, next hive east, making same entrance twenty feet apart. Rows irregular on purpose

1000 or 1100 colonies. Thirteen hundred were put in last fall; but the cellar was overstocked, and some had to be taken out the last of March to relieve it. The last have just been taken out, and we find them in fair condition. They wintered quite well up to March, when they began to waste rapidly, owing to warm weather outside. There were no dead ones in the first three hundred set out, and only nineteen in all. Half of this loss was from causes unknown; the other half was caused by poor queens and lack of stores, occasioned by somebody's blunder in looking over, weighing, or feeding. The poorest wintering was a lot of hanging-comb hives set in for transferring. The bees from two of our out-apiaries did not winter quite as well as the remainder. The out-yard bees do not winter as well as our home yard. This is attributed to the disturbance of moving them home, and to a certain amount of mixing up and loss of bees that seems unavoidable. Our best bees came from those parts of the cellar having the freest ventilation.

I do not care to discuss the subject of ventilation, as I have already done so (page 222 of the *American Bee Journal*, 1878); but after our experience it is somewhat exasperating to be told that bees need no ventilation while in winter quarters. This statement, in entire disregard of well-established scientific principles, and of all practical experience bearing on the subject, is on a par with the assertion that bees can make honey from commercial sugar. P. H. ELWOOD.

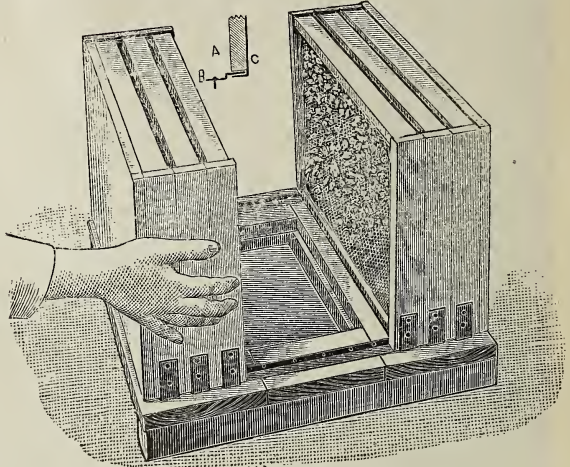
Starkville, N. Y., April 22.

[When we visited Mr. Elwood, two years ago, we took more than an ordinary interest in that mammoth bee-cellar, especially when we learned that he could winter over a thousand colonies in it successfully; and it was one of the first requests we made, that he describe in GLEANINGS this cellar, together with his method of wintering so many colonies. He kindly consented to do so; but a pressure of other duties seems to have delayed it until now. While we were talking we mentioned that it must be quite a sight to see so many colonies together, preparatory to putting into the cellar, all in one bunch, after hauling home from the out-yards. One of the yard-men answered that it was indeed a sight, and we thereupon asked Mr. Elwood to prepare a photograph at our expense, when the colonies were again assembled in the fall; but it seems that, although the bees were in a valley, it was quite impossible to get a satisfactory view showing the whole number; so you will have to be content to supplement in imagination what you see in the picture, the remainder of the colonies.

The hives shown in the foreground are the same as all the rest. The standard brood-nest is made up of eight closed-end frames—the frames of Quinby depth, but shortened some two or three inches, we believe. An outside square box of $\frac{3}{4}$ lumber, without bottom, telescopes over the frames. When a super is put on, this telescoping shell is raised up enough to accommodate it.

Along in this connection it may be interesting to reproduce an engraving which was shown some time ago in our columns. This shows the modified Quinby hive as used by Elwood and Hetherington. It is intended to show how the frames are separated for the purpose of enabling one to find the queen, etc. The entrance to the hive is through a square hole through the

bottom, as shown. This same square hole, if we are correct, is considered very important by Mr. Elwood, in wintering his bees, the same affording ample bottom ventilation, and allowing dead bees to drop out of the way to a greater or less extent. We notice that Mr. Elwood also considers the closed-end frames have special advantages for cellar wintering. That there are such advantages, can hardly be questioned. The closed ends themselves form one wall, and



QUINBY CLOSED-END FRAMES MANIPULATED.

the telescopic cover or body forms another.

The barn, honey-house, and bee-cellar, is, as nearly as we can remember, exactly as shown in the diagram. At the time we were there we considered it a model in the matter of convenience for the special purpose for which it was designed. And that bee-cellar—oh my! When we considered the varying success of bee-keepers who have only a hundred colonies in one cellar, Mr. Elwood's wintering seemed to us simply marvelous, and we regard it so yet.

We take it that Mr. Elwood, under some circumstances, would use artificial heat—that is, providing the number of colonies in the cellar were small enough so as not to give the requisite temperature to produce a change of air; and, so far, he would agree with Dr. Miller.

There was a time when even we ourselves were led to believe that bees needed very little ventilation in bee-cellars; but reports of late have shown quite conclusively that it is a most serious mistake.]

SEX OF EGGS FROM QUEEN-BEES.

HOW AND WHEN IT IS DETERMINED; SOME ORTHODOX TEACHING FROM DR. MILLER.

Dr. C. C. Miller:—Relative to a topic that you touch upon in the last number of GLEANINGS, I should like to ask a couple of questions that you can either reply to directly or through GLEANINGS. I wish to allude to the *determination of sex* in bees. Suppose you take some eggs, just laid, from worker-cells, and transplant them into drone-cells; and, conversely, take some eggs from some drone-cells and place them in vacant worker-cells; what will be the effect of this transposition upon the hatching product? Will the eggs transferred in the first case produce worker bees of increased size, and, in the second case, drones of diminished size? I had always supposed that the germs, or eggs,

when laid by the queen, were indifferently alike, whether deposited in a drone or a worker cell, and that the *subsequent treatment* and the difference in the size of the cell determined what the sex shall be; just as the larger cell and mode of treatment determines what germs shall develop into queens. So with this belief; I ask whether, if a fresh-laid egg be taken from a worker-cell, and put into an empty drone-cell, it will not bring a drone product, if it be treated by the bees as a prospective drone. You are aware that, in vegetable life, there is a certain period in which the bud may change from a flower bud to a leaf-bud, this modification being dependent upon the circumstance of nourishment. The function of sex in the lower forms of life is one not very rigidly determined, and subject to ready modification. The subject is very learnedly and exhaustively treated in the "Evolution of Sex," by Prof. Geddes and J. Arthur Thomson.

C. H. MURRAY.

Elkhart, Ind., April 20.

[Dr. Miller replies:]

Some of the veterans may think it a little strange to take up a subject that they suppose so well understood for the last thirty years. But I am a little suspicious that, at the present day, the theory as to some things in bee-keeping is not so well understood by the average bee-keeper as it was a quarter of a century ago. At that time the Dzierzon theory was comparatively new, and had been thoroughly discussed in the *American Bee Journal*. And I may say here that it is a serious mistake to suppose that the theory mentioned is a matter of no practical consequence. The man who would succeed as a practical bee-keeper will do well to be posted in it.

Friend M. says: "I had always supposed that the germs, or eggs, when laid by the queen, were indifferently alike, whether deposited in a drone or a worker cell, and that the subsequent treatment and the difference in the size of the cell determined what the sex shall be." I think it quite possible that such a belief is not very uncommon at the present day. I will try to occupy but little space in giving what is understood by good authorities to be the truth in the case. If it be said that I give nothing new, and that such truths ought to be obtained from the A B C or other standard works, I reply that there are many who have not read such works, and probably will not; that they may get the truth here, and that it may have a little influence in inducing them to make further search in the right place.

The eggs, as they leave the ovary of the queen, are all alike. At the time of the fecundation of the queen, the semen of the drone is received into the spermatheca of the queen, where it is stored, ready to be used as occasion requires, throughout her lifetime. Millions of spermatozoa are thus stored in the spermatheca, which is a small sac having an outlet into the oviduct, or tube, through which the eggs pass from the ovary. As the egg passes this outlet, a spermatozoon generally enters a minute opening in one end of the egg, called the micropyle. If, however, the egg be intended for a drone-cell, then no spermatozoon enters the micropyle, and such egg can never produce any thing but a drone. Get clearly, then, the idea that an egg that is fertilized as it passes the outlet from the spermatheca will produce a worker or a queen, and that one not thus fertilized will produce a drone. No after-treatment can change its sex. I know that some have suggested the possibility that the workers might change a worker to a drone egg by removing the spermatozoon; but no one has given any proof that such a thing has ever taken place, so far as I

know; and the minuteness of the micropyle is pretty good proof that such a thing is utterly impossible.

Space will not permit to give full proof of the statements I have here made; but those who are interested will do well to invest 15 cents in the little pamphlet, *The Dzierzon Theory*. But it may be well to give here some little light on the subject. In the first place, let it be understood that queens and workers are of the same sex. A queen is a fully developed female. A worker is a female *not* fully developed. The egg that produces a queen is precisely the same as that which produces a worker; but the difference in the quality and quantity of food given to the larva is what decides that one shall be a queen and another a worker.

The answer to the questions given, in the light of the foregoing statements, can be readily found. What will be the result if an egg from a worker-cell be transferred to a drone-cell? It can produce only what it would have been if it had not been transferred. The spermatozoon is there, and that makes it of the female sex. Whether it will produce a larger worker than if left in its original cell, I am not prepared to say. I have seen workers hatch out of drone-cells, and I could not discover that there was any variation in size. There might, of course, be a slight variation without its being recognized; but I am inclined to the opinion that the difference in size, if there was any, was very slight.

What will be the result if a drone egg be transferred to a worker-cell? Unfortunately, all bee-keepers of considerable experience are only too familiar with cases in which drone eggs are laid in worker-cells, and even in queen-cells. A drone-laying queen or a laying worker may put eggs in any number of worker-cells; but the eggs, not being fertilized, will produce drones and nothing but drones. The limited size of the cell must of necessity have its effect on the size of the drones produced. They can not grow to full size, for want of room. There is no trouble whatever in recognizing the difference in size. They look just like other drones, only in size they are like workers.

Those unfortunate colonies which have nothing but drone eggs will try to raise queens from them. Eggs will be laid in full-sized cups; food will be lavishly supplied, but all to no purpose. A drone egg can produce nothing but a drone. Indeed, it can not even produce that in perfection, when laid in a queen-cell; for, according to all observation, such drone never makes its way out, but always dies in the cell.

Marengo, Ill.

C. C. MILLER.

J. A. BUCHANAN'S CASE.

A STATEMENT OF THE SITUATION FROM A BEE-KEEPER AND A LAWYER.

Mr. Root:—I have been much interested in friend J. A. Buchanan's case. This matter of adulteration of honey has been very vividly before my mind for five years past, and I have discussed and considered the matter in nearly all possible phases. In my own experience, which has been somewhat extensive, I have been hundreds of times accused of adulterating, or asked if I did not adulterate. I always took occasion to deny in most unmistakable terms, that I had ever mixed any article with our honey for the purpose of cheapening it. If I had admitted, even as a joke, or to avoid unpleasant remarks, or to avoid a trial in court, that I was to blame in any particular, the parties concerned would have been unalterably convinced that

I was guilty of mixing my honey half and half with something else. When my neighbor asks me if I don't mix a little, I would say, "No, sir!" When my customer says, "Is this all honey?" I would say, "Yes, sir. I have no other kind for anybody." When the inspector of foods, the attorney for the inspector, the justice of the peace, where they bring *all their cases*, say, "You had better plead guilty, it will save you lots of bother, expense, publicity, you had better pay your fine, for we shall have to fine you whether you are guilty or not," answer, "I am not guilty, and I will *not* plead guilty, for that would be a *lie*, which is worse than adulteration. You can not fine me legally until I am proven guilty by proper evidence, and I demand a jury of twelve men who shall hear the evidence, and decide impartially whether I am guilty or not guilty. But I will never, for the sake of peace, tell a lie and pay an unjust fine, even though advised to do so by those who *should* uphold justice and right between man and man."

I believe Mr. Buchanan made a great mistake when he paid that fine. He did not know, as I do, that it seems frequently to be to the interest of those who administer the law in our (justice) people's courts to have those who are accused fined and disposed of as speedily as possible, without regard to the right of the case. The justice before whom the prosecutor brings all his cases frequently comes to think the one accused is always guilty. The mistake was in advising or listening to the three men who were interested in having him proven guilty, for they would deem it a reflection upon their judgment to have the accused proved innocent. When friend Buchanan heard the justice of the peace say, "Mr. Buchanan, I shall be obliged to fine you, whether you are guilty or not," it was his right and duty to say, "Mr. Justice, I want a change of venue;" and by swearing that he believed he would not have a fair trial, he might have had his hearing before another justice who did not receive the food commissioner's fees.

These things look, to an outsider, to be harsh statements; but any one knows what human nature is, and justices are but men, and inclined to favor those who patronize them.

Friend Buchanan says, in his last letter, GLEANINGS, April 15, "It might be that these men's opinion was given that they might get their fees without any labor on the case." I am convinced that this is an exact and truthful statement of the reasons for their action. I am sorry to be obliged to say so; but self-interest is the strongest motive that guides the affairs of men. Will Bro. Buchanan say what guarantee he has that these men will not get him fined every week or every month? No, friend B., our motto must be, not "any thing for peace," but "any thing for right." At this distance friend B. will not accuse me of interested motives when I tell him, "Always get the best lawyer in reach when your life, liberty, or reputation is attacked, and fight to the death."

Some, who have given the subject no thought, will say, as friend B. does, "I have nothing to do with law, and am not posted." Dear friend, no one can live and breathe and work for himself and family without being affected by the law. You can't get away from it any more than you can from the air you breathe or the earth you tread. When you are sick you call a doctor; when you build a house you hire a carpenter; when you begin to keep bees you consult one skilled in bee culture; and let me advise you, when your reputation, which is dearer than life, is attacked in court, hire one who is skilled in the courts to defend you, and never yield to wrong and injustice while life lasts. We must remember our whole life is a fight against wrong.

Here in Chicago our fight is against saloons, gamblers, boddlers, and thieves in high office.

My excuse for saying so much is, that any one of our 50,000 bee-keeping friends may find himself in friend Buchanan's situation, and I hope to guide him safely over this pitfall.

HERMAN F. MOORE.

Chicago, April 23, 1893.

THE ALLEGED ADULTERATED HONEY FROM J. A. BUCHANAN.

A STATEMENT FROM S. T. FISH & CO.

Mr. Root:—On April 4th we received a letter from J. A. Buchanan & Son, Holliday's Cove, W. Va., which in substance stated:

We are getting into trouble with honey we bought from a party in Florida, as it was analyzed and pronounced adulterated with glucose. Now, we can prove that we put up the honey we buy, just as it comes to us; and as we have helpers to do this part for us, we easily clear ourselves of the charge; but when sold in Ohio, the law of this State holds the party good for the offense who sells to the consumer. Did you ever, to the best of your knowledge, sell us any cheap old grades of honey, or honey that you had the least idea as being adulterated? Was the honey we got of you this last fall all pure? or have you any way of knowing? We want a brief statement of facts from each one who has shipped us honey, as shown on the books at our station. Envious competitors are trying to drive us out of the field. We await your response.

Though the above letter was more lengthy, this is it in substance. We responded, April 5:

We note yours of April 4th; and, to begin with, would state that any extracted honey we have sold you has been strictly pure and unadulterated. We are willing to furnish you with an affidavit to this effect; and any documents you wish, call upon us and we will promptly furnish. We are going to do more than this; we are going to send a copy of your letter to GLEANINGS; and, if necessary, attach an affidavit as to the purity, and give you the best advertisement you ever had. Don't hesitate to call upon us, as we hold you in high esteem as business men, and can speak of you only in praise. We await your further demands for our services.

This correspondence thus far explains itself. April 27th we had another letter, advising that the above firm are progressing satisfactorily with their difficulty. They also inclose a clipping from their home paper, which article contains affidavits of proof as to their honesty in the above charge. In that article they speak of us as the most extensive and reliable firm in this country, and we therefore ask for space in your valuable paper to add a few remarks.

Our advertisement with you some issues ago states, "We refuse to handle adulterated honey;" and we repeat herein that we do not want any thing but pure honey, be this honey poor or good; and if we are deceived in any instance, and become aware of such fact, we shall prosecute such parties to the full extent of the law.

The honey we sold to above firm was such as we received direct from bee-keepers, and in their instance it was stock that we directly purchased in carload lots, and from a territory where adulterating is an exception. We are "cranks" on the adulteration of honey, and only regret that our power is so limited in this vast territory, and that your valuable paper does not assist the cause and remedy the present state of affairs.

At one time we surprised you with our statement of the amount of adulteration done in this city. We hope the coming convention will be the opportunity for deciding on the topic of adulteration.

We have private families who occasionally come here for pure honey, but we refuse to sell

in such small quantity, and know of no place where we could recommend them to buy 5 lbs. of guaranteed pure extracted honey. Consumers are in the habit of buying extracted honey, and get such a poor article that we are troubled with the statement that we sell manufactured or adulterated comb honey, and in each instance we quote that A. I. Root, of Medina, Ohio, will pay into the thousands for proof that any *comb* honey sold has not been manufactured by the bee. Let this be a warning to any bee-man, that we do not want any honey but strictly pure and unadulterated. At times we have received consignments of honey-dew; but this we have sold on its merits, not for eatables, but for the manufacture of cockroach paste—in our minds the only purpose it is fit for.

We hope this article will vindicate the firm of J. A. Buchanan & Son, in the minds of all bee-men; and as long as we handle our honey department as extensively as we have the past few years, we will interest ourselves in fighting any cause to better present conditions.

Chicago, Apr. 29.

S. T. FISH & Co.

[We are very glad to receive the above communication, as it helps to vindicate J. A. Buchanan, and because we know S. T. Fish & Co. are above reproach in the product they sell. They, as much as or more than any other commission house we know of, seem to have a kindred feeling with the bee-keeper, and such as every honey-seller should have. It is hard for us to believe, however, that honey is so fearfully adulterated as to make it difficult to get five pounds of guaranteed extracted honey in their city. Perhaps they do not mean to convey that impression. If the small dealers in Chicago adulterate for themselves, let the Bee-keepers' Union get after them "right quick."]

RAMBLE NO. 84.

A DESCRIPTION OF INYO COUNTY, CAL.



IN the early portion of the winter a well-built gentleman with a straw hat and with a benign and pleased expression beaming from his face, and a general aspect that indicated a camper, entered the Rambler's den and introduced himself as Mr. H. Trickey, from Inyo Co. We had a very pleasant chat upon the bee and honey interests of the Sierras; and when he departed I made up my mind that his name was no indication of his character,

for he did not seem that way inclined. During the few hours' sojourn I proceeded to focus Mr. Trickey's eyes and thoughts upon Inyo Co., and will give you the result.

Mr. T. resides in the town of Bishop, and had journeyed to our southern counties, a distance of over 250 miles, his traveling companions a horse and buggy, and a small tent that could be tucked away under the seat of the wagon. After spending a few months looking over the southern counties, and attending the Bee-keepers' State convention, he journeyed back in the

same order in which he came, having, no doubt, a free and glorious time.

Inyo County is probably one of the most peculiar regions upon the American continent. Extremes meet in startling contrasts—arctic cold and torrid heat. Mount Whitney, said to be the highest mountain in the U. S., rises above all of the Sierras on the west, and south of it the surface of the land sinks to hundreds of feet below the sea-level, and forms the desolate and once mysterious Death Valley. The county, though very large, has but few fertile valleys, and the principal one is Owen's River Valley, about 72 miles long and from a half to 5 miles in width. Owen's Lake, into which the river empties, is an inland sea, and is brilliantly clear and limpid, but so strongly impregnated with soda that the manufacture of soda is a growing and profitable industry. It is also something of a summer resort, for the waters are noted for curative qualities. It is no trick at all, Mr. Trickey says, to cure catarrhal troubles. Stock-raising and dairying is one of the chief agricultural pursuits; but the stock, according to Mr. T.'s progressive views, are a scrubby race, and he thinks there is a chance for some one to make a profitable venture by introducing a better grade of cattle.

In all of the southern counties there is an inquiry for good beef, and it could be easily supplied from this mountainous county. The many mountain streams of ice-cold water, flowing down from the regions of perpetual snow, give ample opportunity for irrigation; and while in our orange-grove irrigation the water is carefully used and the gates kept under lock and key, in Owen's Valley the water is so plentiful that every one is at liberty to open the gates and help himself for the feeding of cattle. Alfalfa is raised extensively; and under irrigation it makes a rank growth. It is allowed to become blue with bloom, and the thousands of acres of it make the region a sort of bee-keeper's paradise. So many farmers raise it that it gives a continuous bloom for several months, and two crops of hay are secured each season.

Mr. Trickey owns 400 colonies; and instead of having them located out in some mountain canyon the apiary is on the home place, which makes it very convenient for a man who is tied down with a family. Mr. Trickey, however, baches it, and is not so tied as he might be. The mountains would also be a bad honey-pasture, for there are but few wild honey-producing flowers in this region, while there is but little sage of any kind. The honey-flow from alfalfa commences in June and continues for three and many times four months. Comb honey is the exclusive production in this valley, and Mr. T. thinks the honey superior to the Nevada or the Arizona honey. During the honey-flow, honey can be left around anywhere, and the bees will not notice it. He had frequently had a thousand pounds of beautiful section honey exposed on hives for several hours, with no bad results.

As to overstocking the alfalfa fields, Mr. T. thought it might be done; but in a radius of five miles from his apiary there were 2500 colonies, and he didn't see that it made much difference in the yield. All apiaries were affected alike when the honey-yield commenced. All were very busy at once, or stopped in a like sudden manner. The yield of honey will average about 70 lbs. per colony; and, though the yields are not so astonishing as in other portions of California, the yield is more uniform every year. Since he had been in the business there had not been a season of failure.

Mr. T. uses a hive with a very small brood-chamber; uses but little foundation—only an inch starter in the sections, and none in the

brood-chambers. The sections are put together with a light mallet, and the inch of foundation put in at the same time; and when the super is filled, the job is finished, and the sections handled but once. Two thousand sections per day could be thus handled, and it was an easy trick to do it without any of the new-fangled daisy machines.

Mr. T.'s apiary is laid out on the railroad plan, and his sun wax-extractor is also mounted on the railroad, and can be moved into any position desired.

The valley is well stocked with bees; and among the most prominent bee-keepers is Mr. Wm. Muth-Rasmussen, of Independence. A healthy local organization exists, and has a

avoid such animal references. But the doctor is probably excusable. I suppose he includes certain phases of politeness in his list of "don't knows."

RAMBLER.

E. FRANCE'S REPORT.

HOW THE BEES HAVE STOOD THE WINTER.

Last year was the poorest one that we have had since I have been in the bee business. When the honey-gathering season was over we had not a pound of surplus honey, and, worse than that, we found that the bees had not a winter supply of feed in their hives; so for the first time we bought sugar to feed. We bought 14 barrels of granulated sugar to feed them, and during the month of September we fed the most of it. We had a large boiler made to melt up old combs into wax, and we used that boiler to make our feed, which we did as follows: To 18 gallons of rain water we added 250 lbs. of sugar and 25 lbs. of last year's honey, candied. We heated this to the boiling-point, skimmed while warm, and, when cooled, fed it to the bees. Then we packed the chambers with straw or chaff cushions as usual; then we left them to their fate until spring. The out-yards we did not see again until April.

The winter set in early—about the middle of November. Snow became deep, and drifted badly. It was very cold all winter. The bees were shut in their hives by the cold for 125 days without a cleansing flight, and then many of them could not get back—too cold. Many colonies had the dysentery badly, and soiled their combs very much. I send an itemized report of each yard. You will notice a great difference in the death rates, some yards losing a greater proportion than others. We find that, where the snow was the deepest among the hives, the loss was the most; the less snow, the less loss; the dryer their condition, the better for them; the damper they were, the more they died. All had honey-boards over the frames next to the bees, and pretty well sealed down, as they were not raised after the middle of September.

HOME YARD, MARCH 30.

First-class colonies.....	50
Second-class colonies.....	34
Third-class colonies.....	8
Alive.....	92
Queenless.....	3
Dead.....	7
Fall count.....	102

ADKINSON YARD, APRIL 3.

First-class.....	23
Second-class.....	18
Third-class.....	8
Alive.....	49
Queenless.....	2
Dead.....	36
Fall count.....	87

WHIG YARD, APRIL 5.

First-class.....	36
Second-class.....	23
Third-class.....	6
Alive.....	65



bright future before it. Mr. T. thinks that, in bee-keeping as well as all other branches of industry, a person who goes into it must step up or step out.

One disadvantage that bee-keeping in that valley had to contend with was getting the colonies up to the proper strength to get the first honey-flow, and Mr. T. thought it would be a good trick to purchase virgin queens and stock up early, and that was one of his reasons for visiting the bee-keepers of Southern California, to find a man who could supply him with a small carload of queens.

Inyo County is something of an out-of-the-way place, and is visited only two or three times a week by a sort of accidental train over a narrow-gauge railroad from Reno, Nevada.

The laborers in this valley are mostly Piute Indians, and they are very good workers. In fact, they have to step up and work or step out, for the large game is driven to the mountains, and a living from game would be precarious.

The cold mountain streams were formerly without fish; but the introduction of the speckled trout makes life worth living, to the lover of the fly and rod.

Ants are nearly as troublesome in Inyo Co. as further south; and the producer of comb honey has to be careful to keep it from their trespassing habits.

After recounting my troubles with ants last season, I received a postal with the following information upon the subject:

A little powdered corrosive sublimate, mixed with three times its bulk of lard; run a tape or large cord through it, and tie it around your table-legs or around cans of provisions. It will keep the ants out.

MIGRATORY BACH OF FLORIDA.

I felt very grateful to this bach, and have no doubt others of the fraternity will feel the same.

"A fellow feeling makes us wondrous kind;" but according to Dr. Miller's vocabulary, I ought to call this bach a hog; but the fact is, Rambler was always taught to be polite, and to

Queenless.....	4
Dead.....	11
Fall count.....	80

WATERS YARD, APRIL 8.

First-class.....	59
Second-class.....	6
Third-class.....	1

Alive.....66

Queenless.....	1
Dead.....	9

Fall count.....76

CRAVIN YARD, APRIL 10.

First-class.....	65
Second-class.....	9
Third-class.....	5

Alive.....79

Dead.....	12
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Fall count.....91

KLEBENSTINE YARD, APRIL 15.

First-class.....	38
Second-class.....	11
Third-class.....	1

Alive.....50

Dead.....	39
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Fall count.....89

I think I hear some one say, "There! that is where the trouble comes in—tight covers will kill the bees every time; no escape for the moisture."

Now, don't be too fast. Look at the home yard—102 colonies, and 7 dead. They all had sealed covers, and should have been sealed the closest of any yard. They were fed first. There was not a cover raised in the home yard after the first of September, so they had more time to seal the covers. No, I don't think that sealed covers had any thing to do with the losses. We always winter that way, and usually have good luck. But why did so many die? Poor condition at the commencement of winter; too long cold at a time; no chance for a cleansing flight; too much snow, making the hives damp; and we find that a great many starved with plenty of feed in the hive. The cluster would eat what was right over them until they got up to the top, and then, as the weather was so cold, they did not work off sideways to get feed, then starved. We did not find a single swarm dead that had feed in the top of all the combs.

The prospect for a honey crop is good. Clover is splendid. If we have the right kind of weather at the right time I think we shall get a good crop. You will see that there are 400 colonies now alive, and there is still one yard not counted, so I think we can count on 400 colonies after all spring losses. I see by our records that the largest crop we ever had was taken from 395 colonies, in 1886—42,489 lbs., so our chance is good yet.

We have had some very nice weather this spring. First pollen, April 4. But just now we are having a very cold storm—cold rain yesterday, April 19; rain and snow mixed, all night. To-day, April 20, rain and snow mixed. Every thing is soaked full of water. This ought to make the clover grow, but it is a little hard on weak colonies of bees just now.

Snow this morning, April 21, 2 inches; snowed a little all day. At 4 P. M. it is snowing hard.

Dr. Miller says, in *Stray Straws*, April 15, "In making reports with sealed covers, say what covering, if any, was over the sealed covers." Our hive-tops are 7 inches deep. We fill that space with straw on two-thirds of the hives; the other third have chaff cushions 6 in. deep that we put on under the covers, but over the honey-beards. We have tried putting the cushions under the honey-boards right on the frames; but I never saw any advantage in so doing. We think it is just as well to put the packing over the honey-boards.

LOCATION FOR AN APIARY.

Much depends upon the location, or, rather, protection for the bees to winter well out of doors. They must have a dry and warm location, well protected from the wind—our Klebenstine yard is located in quite a deep valley. The bees are on the north side of the valley, facing the south; two rows of hives on the north side of the apiary are up on considerably higher ground than the three south rows, and the two upper rows are better protected from the wind by a bunch of trees and brush just west of them. The upper rows have wintered much better than the three lower ones. The lower rows are on level ground, and more exposed to the west wind driving up the valley. Snow drifts badly about them, and fills in deeper than it does with the upper rows. Snow remains on the ground longer in the spring, keeping the bees damp. There is always greater loss with those lower rows. We find the same difference in other yards, from the same cause. Our home yard is on high ground, protected by a high board fence. Their location is dry and warm. You see they have wintered pretty well. The Adkinson yard is very much like the Klebenstine. They have died badly; but there, again, the losses are mostly in the lower rows.

Platteville, Wis.

E. FRANCE.

QUEENLESS COLONIES IN THE SPRING, ETC.

SEASONABLE QUESTIONS ANSWERED.

A correspondent writes: "I find I have several queenless colonies this spring. What had I better do with them? If it is best to unite them, what is the best method of doing it? Please reply through GLEANINGS."

What to do with these queenless colonies will depend upon two things: first, the wants of the correspondent; and, second, the condition of the queenless colonies. If the colonies are strong in bees, and the correspondent wishes more colonies than he already has, then I should give them a frame of brood from some colony having the same which it can spare, and send south for a queen for them, or let them raise a queen for themselves, just as my means would allow. The colony will become self-sustaining sooner if a queen is procured for them than they will by raising their own queen; for most likely the first lot of cells built will have to be destroyed, on account of not having drones in the apiary thus early. To raise a queen before there are any drones for her to meet often proves a very vexatious thing; as an unfertile queen is hard to find in order to be rid of her; and if not fertilized she will prove to be a drone-layer, or worse than useless. If the colonies are to rear their own queens, brood must be given them once a week till they have a laying queen, which makes extra work; still, if anxious for bees this work is not to be shunned, for such colonies with their young queens often prove among the best for honey during the season. If the colonies are weak, or the owner does not desire increase, the best thing to do is to unite

these queenless colonies with those having queens. To do this uniting I would employ one of two plans at this time of the year; and, as far as possible, unite the queenless colonies with the weaker ones having queens. The first plan I would use is this:

Select a time just after the bees have had a flight and have become quiet, if the weather is cool, or wait till near evening if the weather is warm, and then carry the colony having the queen to the stand of the queenless one, and shake the bees from the latter off their combs, and from their hive, in front of the hive having the queen, now on their own stand. Previous to shaking the queenless bees off their combs, blow some smoke in at the entrance of the one having the queen, till they set up the hum of "conquered," when this hum will be interpreted as a call by the queenless bees, which will run in immediately, and no fighting will result. After dark, take the now united colony to the stand formerly occupied by the one having the queen, and remove the hive and all pertaining to it from where the queenless colony stood, and no bees of any amount will return to be lost. The other plan is this, and often works nearly or quite as well as the first:

Crowd the bees having the queen upon as few combs as possible, with a division-board, having a half-inch hole near the center of the same. Having previously taken the most of the combs away from the queenless colony preparatory to uniting, set the remaining combs with the adhering bees in the space on the opposite side of the division-board, closing the hive. Have the entrance open only on the side occupied with the colony having the queen, and the bees will unite of their own accord in a short time, as they will open up communication through the hole in the division-board, soon after the queenless bees are placed in the hive. Use the same precaution about removing the hive, stand, etc., from the situation occupied by the queenless colony, and the work is done.

FASTENING COMBS IN FRAMES.

Another correspondent writes: "I have some bees in box hives which I wish to transfer in apple-blossom time. Please tell me through GLEANINGS the best and cheapest way to fasten the combs in the frames when doing this transferring."

First, cut the comb to fit the frames snugly, for on this depends much of the success in fastening them. To do this best, lay the frame on the comb and mark the latter just the size of the inside of the frame. Now hold the knife, in cutting, at a slight incline from the perpendicular, so that the septum of the comb shall be cut a little larger than the mark, and in this way the frame will crowd over the comb so as to make it nearly secure without any fastening. In fact, I have transferred many combs in this way, and not fastened them at all, more than the spring of the frame will do. However, it is best to use some other precaution, so I generally melt equal parts of beeswax and rosin together, keeping the same at the right temperature by placing the dish containing it over a burning lamp, when a drop or two is poured into an occasional vacant cell next the frame, which hardens and fastens the comb in place. To do this best, procure some old tablespoon, which is usually to be found in all households, and form the point of the bowl into a funnel shape by hammering it around a steel wire nail of the right size, held in a vise or otherwise. In this way a nice little spout can be made for the spoon when it is ready and handy to use for many purposes. To keep the wax and rosin from dripping from the bottom of the spoon, draw or push the bottom of the spoon over the

edge of the dish in removing, so as to remove the surplus wax. In this way combs may be fastened as securely as with wire, twine, or wooden sticks, or clasps, and has the advantage in that the hive does not have to be opened in a day or two to take off these things; neither is any brood killed, as is the case with sticks or wire. G. M. DOOLITTLE.

Borodino, N. Y., May 1.

[With our experience in transferring box hives, or movable-frame hives that have been in use in the hands of farmers and slipshod bee-keepers, we have made up our mind that it does not pay to try to use over any combs in transferring. We simply use the Heddon short way; namely, drum out two-thirds of the bees, including the queen, and put the driven bees in a hive with frames of foundation on the stand formerly occupied by the box hives. Place the latter back a little way, with its entrance at right angles to the entrance of the new hive. In three weeks' time, or when all the young bees will have hatched out, drum out the remainder of the bees in the box hive, and, as Mr. Heddon says, you have, in the new hive, instead of old crooked combs, newly built and perfect combs from frames of foundation, all securely wired in; an old box hive that will make first-class kindling-wood, and a lot of old crooked combs that can be put aside to be rendered into wax at the first convenient time. After trying the two methods of transferring, we decidedly prefer the Heddon short way. As we see it, it is cheaper and far more satisfactory than cutting up and fitting combs into frames.]

HUMBUGS AND SWINDLES.

LOOK OUT FOR HIM!

UNDER date of April 15 we have a letter inclosing a clipping from a local newspaper, as follows:

MRS. HODGDON, OF GARNET MESA, SWINDLED BY B. F. LEWIS.

Mrs. Hodgdon, one of our most respected residents, has been made the victim of a shark many times worse than the little trick played upon Mr. Duncan two weeks ago.

A man calling himself B. F. Lewis some months ago went into partnership with Mrs. Hodgdon in the bee-business. She furnished the larger part of the capital, and Mr. Lewis, apparently sincere and honest, was given the management of most of the business. It now transpires that he sold large quantities of the honey, and kept the money.

A large part of the stock was bought upon notes upon which Mrs. Hodgdon went security.

Several notes are held by different parties without her security, and they will be losers. Mrs. Hodgdon was called away some time ago to attend a friend in sickness, and Mr. Lewis made way with a large quantity of both bees and honey. Three weeks ago he was supposed to go up North Fork on business, taking her team and wagon, and has not been heard from since. A diligent search is being made for him by the authorities.

The writer is a widow lady living in Delta, Colorado. As other parties have before this complained of B. F. Lewis, and it seems this is not the first "speculation" of the kind he has been engaged in, we think it no more than fair that the public be warned. Permit me to say, also, that it is very unwise to let a man without reputation or property get hold of such an opportunity as the above, to swindle the unsuspecting. Other complaints come from California in regard to the same man.

JAKE SMITH'S LETTERS.

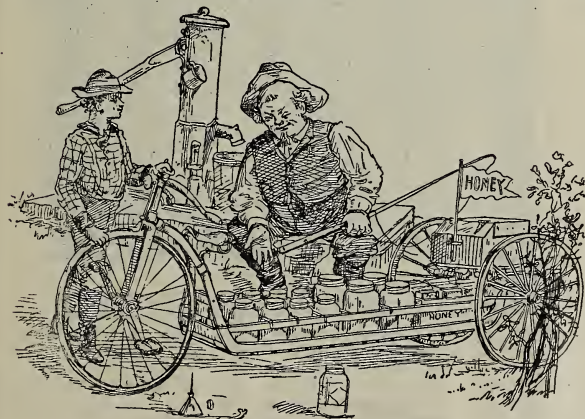
THAT BOY ZED AND HIS HUNNY-PEDLIN BY SICKLE.



M A. I. Gleanings—*dear sir*:—You never see my boy Zed, did you? He's a grate one, I tell you, a reglar genius. Oanly 15 (fifteen) year old too. Fifteen comin this spring. Why, when that boy wuzent 5 year oald he spent 2 weeks a gittin up a dubble harness for the cat and dog. But it diddent take 2 weeks for that cat and dog to git that harness in 1000 snarls when he poot it on them. And the way the hair and fir flue was a cawshun.

A few year ago Zed cum to me and sed he wanted to trade for a by sickle. I toald him I never hear tell of sitch a sickle, and he had no call to have a sickle enny way, for nowadays we diddent use sickles, but cut all our grain with reapers. Then I found out that the new-fangled name for vellossapedes was by sickle. I let him trade, for it was an oald I and diddent cost mutch. I doan't believe in yumerrin a boy to mutch, but it izzent best to be too hard on him nuther. Take him all in all, Zed's a good boy, if I do say it whitch ottent to, and when he duz his fare share of the work I beleave in him havin sum fun.

Well, for a while Zed had a time with that by sickle, but sumthing got out a kelter with it and it was piled away at the barn. Awhile after you begun to send me your paper I notust that Zed wuzent playin around and carryin on his tricks as yousual. He did his work up reglar, and he eat well. So I wuzent skairt about his being sick. But for a good menny days he seemed to be out of site a good eel.



ZED SMITH'S INVENTION.

1 day he cum to me, and he sez, "Pa," sez he, you see he calls me pa nowadays, sints the gals is a growin up and wants to be kind a stilish like, and doant like to have him call me dad no more. Well, as I was a sayin, he sez, "Pa," sez he, "cum out here," sez he. I sez, "What do you want, my son?"

"Oh! you cum out and see," sez he.

So I went out. Wood you believe it? he had

took that oald by sickle and hede took a pare of oald wore-out buggy-wheels, and hede rigged up a contrivance soze he cood lode onto it and run it. Then hede got a lot of froot cans and loaded onto it, soze to show how it cood be loaded up with hunny. But you can see all about it into the pickter.

I felt proud a that boy. Sez I, "What ever poot sitch a thing in your hed, Zed?"

"Why," sez Zed, "that there bee paper what Mr. Gleanings sends you tells how he carries the male and sitch things on a by sickle, and I thot it wood be handy to have it this way."

"It's offe handy," sez I. "Them fellers talks in that paper about haulin hives. What's to hender haulin em on this?"

Then I notist his flag, and sez I, "Is that the way to spell hunny?" sez I.

"Yes," sez he, "that's the right way."

"I spoze it's all right," sez I, "and maybe I'd ot to lurn to spell like you, Zed, but I guess lme most too oald, and that looks like a funny way to spell."

Zed's a good skoller. And well he may be, for he's gone to skool 100 times as mutch as ever I did.

I sez to him, sez I, "Zed, your a boy after your father's oan hart. Sum of these days lle git I a them reglar by sickles like Mr. Gleanings takes on so about, and you and me can both lurn."

JAKE SMITH.

CARNIOLANS DEFENDED.

JOHN ANDREWS SAYS SOME GOOD WORDS IN THEIR FAVOR.

On pa 219 Mr. R. F. Holtermann, writing on the different strains of bees, says: "The Carniolan bees, I believe, possess some valuable traits; yet, among those traits, are others which, I believe, render them unfit for the average bee-keeper."

When I read his statement I wrote him asking what those "undesirable traits" were. His answer was, that his experience dated back to the time when Jones received the first importation from Mr. Frank Benton. That, I think, was 12 years ago; and you may remember the Carniolans first imported were mixed with the yellow bees, the cause of which has been explained at different times by Mr. Benton.

If I am right in my impression, it was some years after the first importation before they went far enough back to get the gray Carniolan bee. After getting his answer, that "they swarmed too much," he further says: "Now, it is just a question with me, if perhaps, by restricting the queen to a certain space in the hive, we may not be able to overcome, to a certain extent, this swarming trait, if we can; then the bees may be of some use to the specialist; but the average bee-keeper throughout the country will neglect tin-

kering that much with his bees; and the result will be, he will be better off with the Italians."

I wrote him that his suggestions on contraction would *not do it*; I would give the queen all the room she wanted, and that I never saw too many bees in the honey-flow; and after the flow is over, then you can contract, if you wish; but I never saw too many bees for me, at any time.

Now, to bring this matter to a close, I will say that I have had a number of letters this spring, stating that the most of their Italians were dead, and that the few Carniolans they had were in fine condition. Now, what suggestion does this give to the "average beekeeper"? Would he be better off with Italians? Now, I wish to say here (and if the editors think it is too much of an advertisement I will pay for the space), I can get double the extracted honey with the Carniolans that I can with the Italians; and I took a twelve-year course with the Italians years ago; and, so far as I can see, my bees now are in a fine condition, and *all* of them too.

JOHN ANDREWS.

Patten's Mills, N. Y., Apr. 5.

REARING CHOICE QUEENS.

AN EASY AND SIMPLE WAY; WHEN AND HOW TO DO IT BY THE USE OF QUEEN-CELL PROTECTORS.

When the swarming season arrives, hive a few of the first swarms, and put them on their original stands. Give them sections; and from these young swarms, which will contain all the field-workers, get all the honey possible. But the hives that have cast these swarms, which will contain only the young bees, the brood, and all the queen-cells, move to *new* stands; let them remain without further attention for five, six, or seven days (not long enough for one queen-cell to hatch, lest all the other cells be destroyed), and then open each hive; sort out and carefully trim, and put in cell protectors all its queen-cells. Attach the cages (see cut), and hang them all back in the hive on the side of one of the center combs. I generally leave out one of the combs, unless a follower is used, when I thus put the cages in a hive; but as the cages are in the space between the combs, it is not strictly necessary. After all this has been done, close up the hive and wait until the time for all the cells to be hatched, and then open the hive again; and, if you find six or eight fine young queens in the cages, break up the colony and make as many nuclei from it as you have young queens. Put one of the young queens into each nucleus, and leave her there until she lays; then do with her what you please. The way to make the nuclei is to put one comb of these young adhering bees and an empty comb at the side of it in an empty hive, and leave the entrance to the nucleus hive closed 24 hours; then open the same, and, as all the inclosed bees are young, they will stay, and all will be well. There is considerable gained in using young bees to raise queens, as the young bees will stay in a nucleus better than old bees, and you can raise so many young queens, and get them laying before the young bees become field-workers.

Queen-cells for a queen-nursery should be taken from the best strains of bees; and if you desire increase by natural swarming, destroy the cells in inferior-blooded colonies that have cast swarms, and give them a select young queen

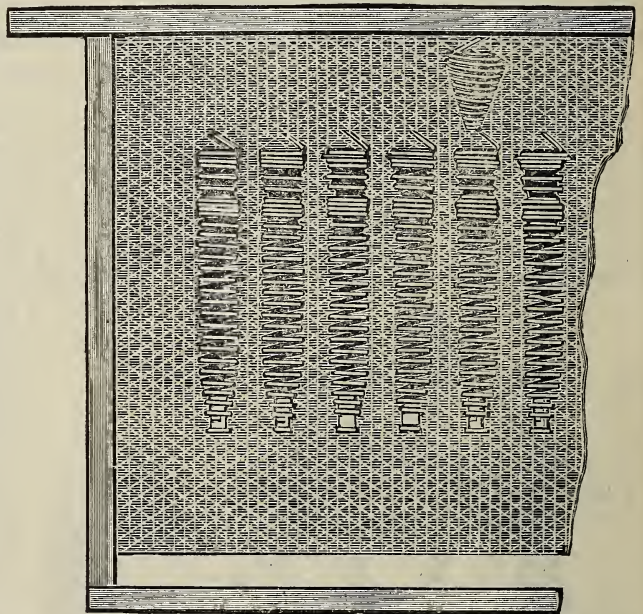
from one of the before-mentioned nuclei. You can introduce the queen from the nucleus with the nucleus bees if you wish to, by taking out a frame from the hive in which you wish to introduce the queen, and then taking the frame, containing the queen and bees, from the nucleus hive, and putting it in the place of the removed frame in the queenless colony.

To introduce in this way, care must be used not to frighten or get the queen to running; then the queen will generally be received.

I hatch a great many queens in the aforesaid way, with great satisfaction, and always keep through the swarming season a goodly number of choice young queens in nurseries and nuclei in each of my six bee-yards.

By removing the queen from *any* colony you can hang in as many caged cells as you please, and the bees will care for the queens when they hatch; and you may keep the same colony raising young queens, using the queens wherever you need them. You can also hatch young queens in a colony that has a queen of its own; but the bees will not nurse the new mothers after they hatch; but, on the contrary, if they could they would kill them; and queens allowed to remain in such a colony a day or two after hatching are not as good as queens allowed to remain after hatching in a queenless colony.

Before I forget it I will tell you that, when I introduce queens in the spiral wire cage, I crowd two or three penny-shaped peppermint candies



WEST'S QUEEN-CELL PROTECTORS AND CAGES, SHOWING HOW ATTACHED TO THE COMB.

(I buy them for this use) in between the coils on the upper end of the cage for a stopper, and the bees will eat out these candies and liberate the queen.

Much more might be said about introducing queens, but I will leave that now and tell you something about introducing queen-cells.

If an increase in colonies is not desired, in the swarming season, when good queen-cells are plentiful, cut out such cells as you want to save, and put them in queen-cell protectors (great care must be taken in handling cells or they will not hatch). Now, suppose you have eight cells.

I trim and put in the protectors, then go to eight colonies that have the poorest queens; kill the queens and destroy their cells, if there should be any, and at once place in each colony one of the protector-inclosed cells. The queen in the cell, if it is a good cell, will hatch out in due time, and soon go to laying, and, as a rule, this colony will not swarm; and if there is honey in the field they will gather a large surplus, and they will be in good shape for winter. In my out-yards, to make doubly sure of a cell's hatching in each hive, I sometimes put into a hive two protector-inclosed cells; but to one of them I attach a cage; then if both cells hatch I can use the caged queen elsewhere; if only the cell in the cage hatches, liberate the queen from the cage, and she is at home. In this way one can always have a surplus of queens on hand to use wherever needed; and if care is used in selecting cells from the best-bred bees, you can breed all your bees up to a high standard, and keep them there; and you can control your swarms to such an extent that you can fix your increase to suit yourself.

N. D. WEST.

Middleburgh, N. Y.

[This may seem a little like a free ad. for a well-advertised cell-protector and cage; but as there are many valuable hints given above, no one will object, but, on the contrary, be glad to learn how to raise choice queens at so insignificant a cost. Indeed, we believe friend West presents the best and simplest method for the honey-producer. There is no better time to requeen or replace poor queens with good ones than during the swarming season, when an abundance of good swarming cells are on hand from select queens.]

A VISIT TO A. N. DRAPER.

A BIG TESTIMONIAL FOR THE LARGE DADANT HIVES.

Business calling me to the beautiful little city of Upper Alton, the home of friend A. N. Draper, I made it a point to visit him and see how his bees had wintered in those large modified Dadant hives that he prefers. He very kindly unpacked hive after hive for my inspection; and I must say that any one who advocates large hives and plenty of bees would have been jubilant at the sight; for, notwithstanding, the severe winter we have just passed through, I never saw bees in this latitude in finer condition. Four and five frames of brood, and plenty of bees, were seen in every hive here, the first of April. Friend Draper has given in former issues of GLEANINGS his method of packing with dry forest-leaves; but for the benefit of those who have not read it I will give a brief description of his methods.

In early October, after seeing that each colony has an abundant supply of at least 40 lbs. of honey, he removes the three frames that have the least honey in them, and places two thin dummies or division-boards on each side of the remaining frames (8 in number) with a space between the dummies and the side of the hive. This space he proceeds to fill with dry forest-leaves, and then fills the six-inch cap full of the same leaves; the cap is then placed in position on the hive, first spreading a cloth of some heavy material over the frames and bees. He claims that the leaves, brought right down on top of the bees, hold the heat, and that, when the sun shines, even in the coldest weather, it imparts some heat to the leaves; and as all moisture passes off rapidly the heat is retained. At any rate, I never saw finer results so early in the season. Many will claim that ordinary

eight-frame hives would have wintered the bees just as well, had they been packed in a similar manner; but scattered here and there among the large eleven-comb hives were quite a number of eight-frame old-style Heddon hives, which are practically the same as the Dovetailed hive. These he had packed the same as the large hives, as nearly as it was possible to do, and in the same manner as described by himself and also the Dadants in former issues of GLEANINGS, by taking lath and placing them in such a manner around the hive that quite a space was left between the lathing and the hive-body, which was filled with leaves, and the cap also filled with leaves. We opened hive after hive of these, and I have no doubt that, had friend Dadant been there, he would have said repeatedly, "Didn't I tell you so?" for, without a single exception, they were not as strong in bees or brood as the larger hives, and in most cases markedly so.

It goes against the grain to make these admissions, for I am decidedly in favor of a less cumbersome hive; but facts are stubborn things. Of course, in milder winters the difference would not have been so great; but I am forced to the conclusion that, to those who must have strong colonies early in the season in order to secure any surplus from the white clover, large hives and ample protection are required.

The prospects for a honey crop in that vicinity are fairly good if the clover yields honey this season. His vicinity abounds in elm, maple, box-elder, and fruit-trees, which is one reason he can have good strong colonies for the white-clover harvest; but friend D. is greatly troubled by the apprehension that the fruit-growers in his vicinity will, by spraying their trees while in bloom, ruin his fine strong colonies at his home apiary and the out-apiary adjoining. He has some 320 colonies, and the loss would be a severe one to him. There should be a law passed prohibiting the spraying of fruit-trees until the blossoms have fallen. E. T. FLANAGAN.

Belleville, Ill., April 5.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HOW FAR DO BEES GO FOR HONEY, AND DO WELL?

The following is a valuable article that we take pleasure in copying from the *American Bee Journal*. We have known some of the facts presented to be true; but a little substantial confirmation helps to establish them.

How far do bees go in search of honey, and still do good work? is a question that seems to have received some attention of late, and bee-keepers differ widely in their opinions, some limiting the distance to 1½ or 2 miles, while others go to the opposite extreme, and say they will go as far as 12 miles. However, when honey is plentiful the former figures may be nearly right, and very few bees work outside that distance; while, if honey were scarce in their immediate vicinity they would probably go a far greater distance than that, although I never saw bees go over 3½ or 4 miles from their homes.

Well, last summer was the first time I had a chance to test the matter a little, as last year was the poorest of the several poor seasons we have had in succession, and the bees were in a starving condition all summer, until the fall blossoms yielded their precious sweets, which gave the bees more than they could do for about five weeks.

The main part of our fall crop of honey is from smartweed; now, this smartweed, or whatever they call it, has its peculiar ways of blooming, and also a decided difference in the amount of honey it produces. That which grows in hilly regions has

usually small bloom, and sometimes yields sparingly, while that in the bottoms blooms from one to two weeks earlier, and has larger and more perfect blossoms, and gives a good supply of nectar before a bee is seen working on the same plant on the hills.

As my apiary is located about two miles from the bottoms, the bees began working very briskly for several days, and I noticed not a single bee working on the smartweed near the apiary; so I immediately went to the bottoms, and found the smartweed in full bloom, and just literally alive with bees. This satisfied me that my bees were working at least from 2 to 2½ miles from home, and doing good work at that.

The next thing I wanted to know was, how long it would take a bee to get a load of honey at that distance, as no other honey was being gathered at that time, and the working bees could be seen in the morning going in a steady stream toward the bottoms—like a swarm that is hurrying off to get better quarters than they had at home. So I sprinkled flour on a good many of the bees that emerged from a certain colony, and waited for their return.

The first bee returned in 13 minutes, and was well loaded with pollen from corn tassels, which it evidently gathered in some of the neighboring cornfields. The second returned in 32 minutes, and had a load of honey, and a little smartweed pollen. Several entered at 34 minutes, and a few at 37, and all the way up to 40 minutes. All that returned after 30 minutes were well loaded with honey, and some carried small pellets of smartweed pollen. The average length of time it took them to go to the bottoms, load themselves and return, was about 36 minutes.

To tell just how much more honey they would have gathered if they had had the flora near by, is hard to tell—undoubtedly a good deal more honey; but bees can do good work at the above-named distance.

F. X. ARNOLD.

Deer Plain, Ill.

MORE FAX; BY A MODERN "JOSH BILLINGS."

Mister Editor:—I send you sum more fax which I hope will be favorable received. I was educated out heer in the Hoosier State, and, although I am only sort o' middlin' in gramer, I kin pride myself in bein' a mity good speller. These here fax ain't so bulky, but the awther hopes thay will make up in quality what thay are lackin' in quantity, as the poet sez.

One yeer's actual 'sperience in bee-keepin' is wuth five yeer's of theorizin'.

A man what keeps bees in a log gum ought not ever complain of a skeercity of honey.

The world has a milyun roosts for bachelar bee-keepers, bu' nary a single home.

A good menny supplies and fixtures don't operate well because of inferior finish; what we want is better workmanship in kombinashun with first-class machineery.

After cagin' queens with drones, konfinin' 'em in a hive, and lettin' 'em sail round at the end of a fine silk thred like a kite, fer the purpose of findin' sum improvement on the method of fertilizashun, I have, at last, kum to the konclushun that the less you monkey with the original plans of the Creator, the best it will allus be.

Mister Root, don't you think it is a fax if I could produce a strane of bees havin' five spots on their wings that thare would be a mity big demand fer 'em? It haint the git up and git, you know, but the looks what I would be after now-a-days. However, fer the present, don't enny body send fer beautiful polka-dot queens until I have 'sperimented for a season.

A beginner wants to know what is a good remedy fer bee-stings, and I herewith give a re-cet: Jist as soon as you find you have been stung, which will not take more'n 15 minits after the bee has got in his malishus work, you will keep calm and cool; fer if you git mad it will hurt worse. Remove the stinger, and at the same time and motion apply a little saliva, anuff to warsh off the pizen, and keep it frum soakin' in. This simple remedy will not cure

entirely, but will save lots o' hurtin'. Thare's hundreds of remedies but no perfect cure—except amputashun; and if that is too much fer you, wy, you had better make up your mind to grin and bear it; fer whenever a bee socks his stinger into a feller's nerve, thare is bound to be sum komplainin'.

ELLERY KRUM.

BAY-BLOSSOMS.

There is now on the table where I am writing, a bouquet of bay and magnolia blossoms. The great white flowers of the magnolia are a surprise and delight to one who has always lived at the North. The large germ and stamens are inclosed with three white petals, and the specimen before me measures four inches in length by three in width. These three inner petals are surrounded by six larger ones, which measure six inches in length by four in width. The leaves of the magnolia are thick and leathery, and, like all the leaves of this locality, varnished a bright green. There were three large insects in the bloom; and will some of the bee-keepers who live where magnolias are abundant tell us whether they are rich in honey?

The bay-bloom belongs to the same family as the magnolia, but is smaller, and admired more by some persons than the magnolia. The germ resembles the magnolia, and is surrounded by eight white petals measuring two inches in length and one in width. The three calyxes are white, 1½ inches in length and ¾ in width, and turn back upon the stem, adding to its beauty. Its lovely green leaves are smooth and glossy.

MRS. L. HARRISON.

St. Andrews Bay, Florida, May 1.

SEALED COVERS A GREAT SUCCESS; CAUSE OF SPRING DWINDLING.

As you have solicited a report from your subscribers as to their success in wintering bees under sealed covers, I will give my experience for the past ten years. My bees are wintered on their summer stands, packed in outer cases with planer shavings. The cases are of a size to leave a space of four inches all around the sides and bottom, and from 6 to 8 inches on top. When the covers are less than ½ in. thick I use there or four thicknesses of newspapers under the packing; and when the covers had been loosened so late that the bees could not reveal them they were screwed down, and the cracks sealed with a thick flour paste, and the entrances left the full width. My losses for the last ten years have not exceeded two per cent.

The past winter has been very severe in this section, confining the bees to their hives for over three months without a flight. Out of 75 colonies I packed as above described, I lost 3; one starved to death; one lost its queen, and the bees left the hive full of honey, while the entrance of the other became clogged with dead bees, and they smothered; consequently their loss can not be attributed to the manner of wintering.

I noticed that but very few, who have described their manner of packing in outside cases, seem to think it necessary to put any thing under the bottom-board. It seems to me that it is just as essential to keep the cold air from the bottom-board as it is from our sitting-room floor.

Now a word as to spring dwindling. My experience has been, that colonies that go into winter quarters with few bees and insufficient stores, and of poor quality, are the ones that are troubled with "spring dwindling;" while those that start in with plenty of bees and sealed honey are nearly always ready for business when spring opens.

P. L. NORTON.

Lanesboro, Pa., Apr. 24.

SEALED COVERS VS. QUILTS; VALUABLE TESTIMONY.

Ernest.—Those sealed covers that you have been experimenting with are all right sometimes and sometimes they are all wrong—like a balky horse that will pull when every thing is favorable, but when the hill is too long and rough he will stop before he gets to the top of the hill. But quilts or cushions that will let the moisture pass up are like the true horse that will pull when the other horse won't. I have wintered bees for 20 years both ways, part with sealed covers and part with quilts only. But I winter in cellars, and I find that, in some of my cellars, bees will winter just as well under sealed covers as under quilts, and in other cellars they will not winter well unless under quilts. But my bees will winter well in all of my cellars with the quilts, so I am in favor of quilts for cellar wintering, and I think the same will prove true in outdoor wintering, unless it is in a warmer climate than it is here in Central New York.

Middleburgh, N. Y.

N. D. WEST.

[It is somewhat of a nuisance to pull off the bottom-boards of hives; and if the absorbing cushion on top of the hive will work as well as sealed-covered hives with no bottom-boards in the cellar, we shall like it. In practice we prefer most of our hive bottoms permanently fastened.]

SEALED COVERS AND ABSORBENTS; THE DIFFERENT PACKING MATERIAL CONSIDERED.

My strongest colonies went through the winter with sealed covers, with the seal broken in mid-winter. I can see no difference between chaff cushions, as usually applied, and sealed covers, outside case with two inches all around, and 4 to 8 inches on top, with dry sawdust or chaff. Mineral wool is the best, for packing outside cases, that I know, and it is cheap enough (\$1.25 per 100 lbs.).

I tried one strong colony with cork packing and 6-inch cushion (cork) on top. It strikes me as being too porous; in fact, this proved to be so porous that all that I found in the spring (March 8th) was pores. Bees dead? do you say? I should remark! Chaff cushions are good; sealed covers with lots of sawdust, chaff, excelsior, or mineral wool, on top and around, kept dry, are also good, providing you have vigorous queens.

D. LINDBECK.

Bishop Hill, Ill., April 15.

[Mineral wool at \$1.25 per 100 lbs. is rather expensive—too much so for the average bee-keeper; so also is ground cork.]

STINGS AND RHEUMATISM.

There seems to be a growing conviction that bee-stings are good for rheumatism. My experience seems to point in that direction. For a great many years I had been subject to muscular rheumatism in my back and shoulders; and at times it would get into my arms till I felt as if I had the toothache all through the muscles of those limbs. Two years ago I purchased a dozen colonies of bees. They were in different styles of hives, some with movable frames and some without. I was told that they had not been opened for three years. At first they were inclined to resent the presence of a person in the apiary as an unwarranted intrusion. In transferring and manipulating them, of course I received plenty of stings. In a short time I noticed that my rheumatism was gone, and so far it has not returned.

L. J. TEMPLIN.

Canon City, Col.

Reading of "pollen plenty," "balmy April weather," and "lots of bees hatching," in last

GLEANINGS, makes me almost homesick, for my bees are still in the cellar, while rain, snow, and high winds have been the order of things the most of the time in this locality, so far, during 1893. Neither soft maple nor elm is in blossom yet, while I see by Dr. Miller's "Straws," the same opened with him April first. The bees have been in the cellar 167 days, and seem quiet and nice, although the waste on the cellar-bottom has been great for the past three weeks.

G. M. DOOLITTLE.

Borodino, N. Y., April 26.

A CORRECTION.

I notice a slight error in my article in April 1st GLEANINGS, in which you have the name of Henry Alley instead of Henry Utley in several places.

C. H. DIBBERN.

Milan, Ill., April 29.

[By referring to the original manuscript we see that friend Dibbern wrote "Halley" as plainly as pen can make it, and our proof-reader supposed it was meant for our "old reliable" friend H. Alley. This shows that too much pains can not be taken in writing names. We hope the above will make matters right.]

Why not make the top-bars of brood-frames wide enough to be queen-excluding, and thus do away with the metallic queen-excluder?

Pee Dee, N. C., April 12.

A. A. COX.

[This has been suggested before, but it is not practicable.]

If Doolittle (page 296) will take a fine saw and cut kerfs half way through the board on which he cuts foundation, he will not need any gauge-boards, and will find that it will cut much better. The nearer the handle of the knife is held down to the board, the better it will work.

§

ANSWERS TO QUESTIONS

FROM BEGINNERS.

W. E. D., of West Virginia, asks whether we use chaff hives summer and winter. *Answer*.—We do; but at the approach of warm weather we remove the chaff cushions—otherwise the colonies are protected the same as in winter.

W. C. F., of Virginia, says he has five strong colonies, one of which is pure Italians and one common black bees, and he asks how he can Italianize the blacks. *Answer*.—We would recommend the plan given in our answer to T. T. F., Tennessee, below.

O. H., of Illinois, asks whether, when putting foundation into brood-frames, the same should touch the bottom-bar. *Answer*.—Except for perpendicular wiring there should be a quarter-inch space between the bottom edge of the foundation and the bottom-bar. The foundation sags a little when the bees draw it out, and a little allowance should be made.

H. C. C., having read our article on transferring, in our catalogue, wants to know when transferring should be done. *Answer*.—Preferably in the spring, when bees are getting a little honey from some source; and when, too, there is very little honey in the combs. However, we transfer any time during the season. Mr. Heddon's short method is the one we prefer.

G. R. W., of Indiana, wants to know what to do with the queens of after-swarms that are returned to the parent colony. *Answer*.—As a general thing there will be queens in the apiary that are either pretty old or else not very

prolific—or, what is more likely to be the case, queens whose bees are poorly marked. These queens can be removed, and selected queens from the after-swarms introduced in their place. In this way the apiary can be requeened very cheaply.

T. T. F., of Tennessee, asks how to have a queen fertilized by select drones. *Answer*.—The only way is to place perforated zinc over the entrances of the colonies having undesirable drones. For this purpose, drone-guards or Alley traps may be used. Drone comb should be given, and stimulative feeding should be practiced on the colony or colonies having select drones. Unless such bees are fed daily a small amount of sugar syrup when honey is not coming in, they will be liable to kill off the drones, or refuse altogether to rear them. The conditions of an ordinary honey-flow should be brought to bear upon the colony as nearly as possible.

F. W., of Connecticut, says he has three colonies of bees in Dovetailed hives, and wants to know how he shall manage them to obtain the most comb honey. *Answer*.—This question requires too long an answer to be given here in detail; but in a general way we may say that early brood-rearing should be encouraged so that there may be a large force of bees a couple of weeks old when the honey season opens up. To procure either comb or extracted honey, this is the most important factor to be considered. A large force of bees of the right age, and a reasonable honey-flow, means honey. A small force of bees, or even a large force too young, means a practical failure so far as the production of honey is concerned. But our querist may ask how to start early brood-rearing. As soon as the weather opens up warm, feed the bees daily about half a pint of sugar syrup. It is assumed that the colonies have been carefully packed in double-walled hives, otherwise there will be times when the brood will be chilled from this early stimulative feeding.

MY VISIT TO T. B. TERRY'S.

THE REST OF THE VISIT.

After my mention of the ditching-dredge, in our last issue, the manufacturers were kind enough to send me an electrotype of it. But I do not like the electrotype of it as well as I did the machine itself. In the first place, it is not tearing through a swamp. Secondly, that great walking-beam, as I call it, is out of all proportion. It should be nearly as long as the whole boat, and then that scoop is insignificant. Why, the one I saw would hold a whole family, providing there were not too many of them. The steel horns in front, you will notice, tear up the soil, and then when it is swung around over the dry land, or over the bank, the operator, by moving a lever, drops the bottom out. The arm, or handle, attached to this scoop, runs in grooves so it can be drawn back or let out, while the great walking-beam can be raised up at any angle, or swung either to the right or to the left till it brings the digger in such a shape that the man on the platform handles the whole as he would a spade or fork.

Now for the outdoors.

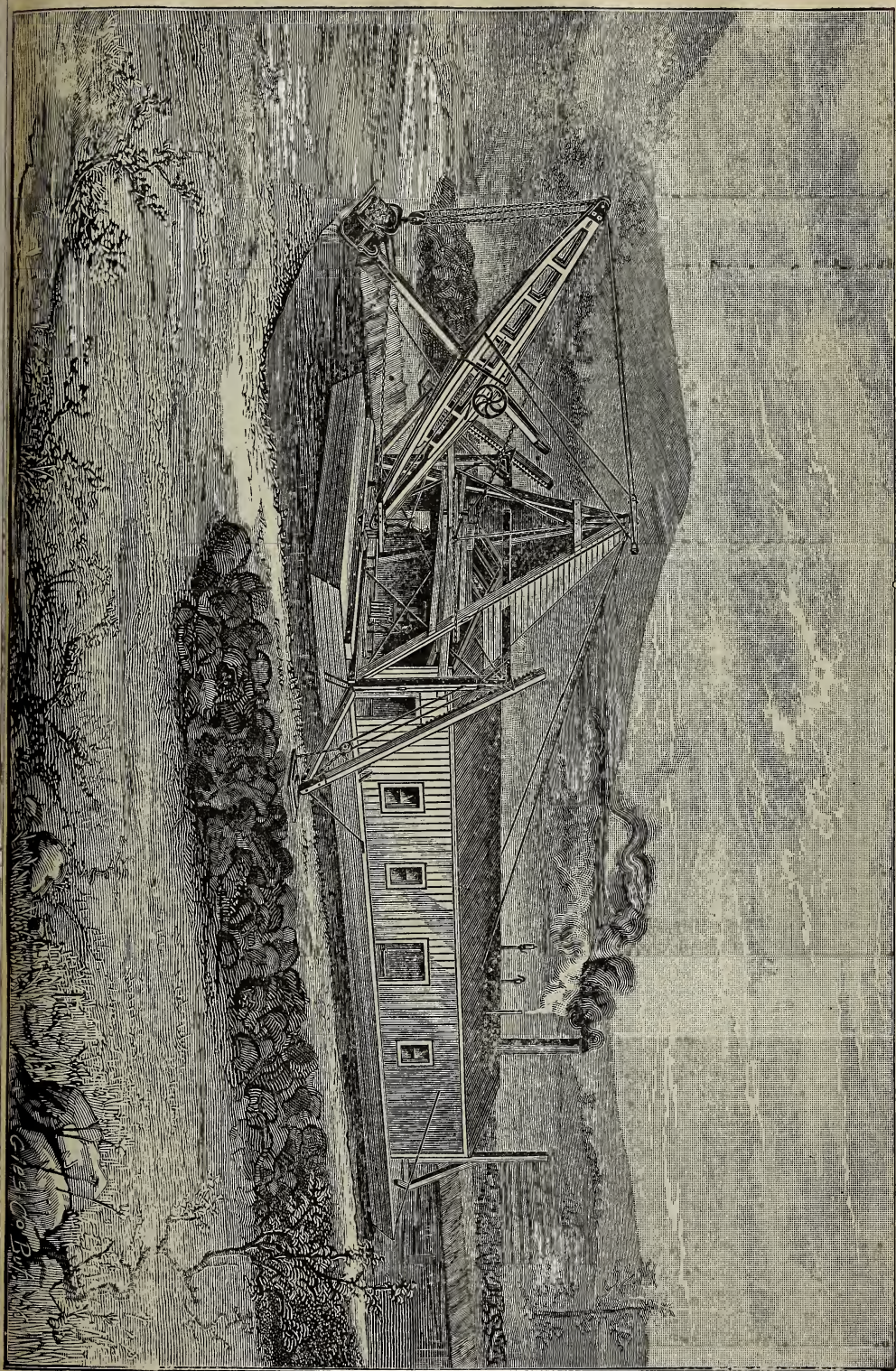
One marked feature of friend Terry's premises is the fact that there is no rubbish around the barn or around the house. There is not an old wagon, not a hay-rack nor a corn-crib, chicken-coop, pig-sty, nor any thing of the sort. There is not any muddy barnyard, because the barnyard is covered up under a roof; and while, at the same time, it is dry and

pleasant to walk around in, it is almost as airy and light as all outdoors. Again, there is not any woodpile, no ash-leach, no dead trees, no sticks of timber, no old rails; in fact, there are not any piles of lumber, old or new. The premises are as clean and tidy as any city residence. While I enjoyed the effect, I do not know but a small-sized groan escaped me, and I came pretty near saying to myself, "Oh dear me! if Mr. Terry had to have this, that, and the other around his home, that I have to have, he would find it a hard matter," etc. I made up my mind that I was going to find out about the woodpile, bits of odd lumber, etc., for a very pretty new fence had just been built between his land and his neighbor's. I felt pretty sure there were some posts left—may be some boards. Of course, the wood was in the wood-shed, as every farmer's wood should be. But while we were looking over the farm, away off on the back side, over the hill, where it could not be seen from the street, was a sort of lumber-yard. There were the extra fence-posts, and the firewood that could not be put into the wood-shed, probably because there was not room for it, and certain odds and ends that would accumulate, and which were too valuable to throw away. Friend T. had gone to the trouble and expense of hauling this away off out of sight, or very likely it was taken out of sight in the first place. In fact, a good deal of it was just as convenient to get at there as anywhere else. Now, not all of us, perhaps, can do as much as he has done in this direction. He is a great teacher, and he ought to have a model place for the rest of us to look at. But we certainly can get rid of a great part of the rubbish that mars and deforms the prospect around our homes. This is nothing new to me. I have been at work at it for years. Below is what I had printed on some cards and scattered all over our establishment, and gave all our people an exhortation on this subject.

GET RID OF RUBBISH, AND SLICK UP.

If you want to help me, friends, just lend a hand while we get rid of all useless stuff that encumbers our various buildings, rooms, and counters. Let us get rid of every empty barrel (be sure to preserve the head along with it), empty box or basket that is not used or wanted; all unsalable goods; tools that happen to be left in your room that are not used; old iron; old lumber; discarded rubbish of all sorts. Take the barrels and boxes to the box-house; and, by the way, wherever you find a barrel in your room that is less than half full, put its contents into a basket of proper size, and get rid of the box or barrel. This will give us more room, and it will also enable the packers to have more boxes and barrels without buying them. Be very particular about letting tools that are not yours, and which you do not use, remain in your room. A while ago our men were hunting all over the farm for our four shovels. I found one of them in the express room. The expressman said it had been there for a long time; and he said he did not know whose it was, not where it belonged. Now, please let us avoid this state of affairs. If you do not know where a thing belongs, bring it to me, or call my attention to it. If there are any tools or machinery in regard to which you are undecided as to whether they will be used again or not, call my attention to it, and I will decide where it belongs. And, please, do not leave any old coats, shoes, rubbers, umbrellas, etc., here on our premises. I give you fair warning, that I am commencing my "spring clarin' up," even now, this second day of January, 1893; and if you do not take care of your property forthwith, it may turn up missing before you know it. Let us all get at it and turn all these accumulations, that are doing no good, into the hard cash that you and I both stand in need of. Things that won't sell for cash at all—not even for kindling-wood—let us get out of sight, and have our premises present a better appearance when our spring visitors come to see us. If it will pay to have a broken thing mended, the very best time to mend it is when it is first broken. You know, "Order is heaven's first law."

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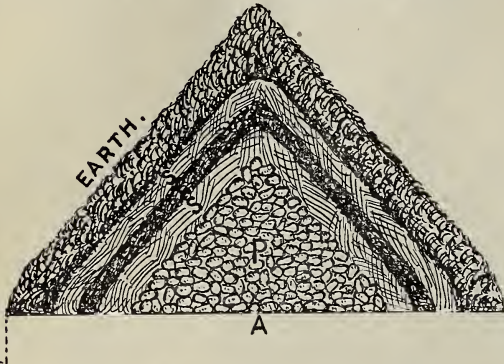
Chas. B.

Let us now turn in all together and fight against the sin of disorder.

A. I. ROOT.

Several times of late I have been wondering what a farmer or anybody else ought to do with discarded machinery. A few days ago I saw an article in the *Ohio Farmer* on this very subject. By the way, if you live in Ohio you certainly ought to take the *Ohio Farmer*; and I do think it would be a pretty good idea to take it, even if you do *not* live in Ohio. Old machinery should be put away under shelter, because it frequently furnishes us material for something that would otherwise cost a good deal of money. A writer in the *Ohio Farmer* told how he made a lot of things out of an old mowing-machine.

Friend Terry's tool-house, especially the upstairs part of it, did not look quite as tidy as



THE WAY TERRY BURIES HIS SEED POTATOES.

Cross-section of my seed-potato pile when finished for winter. P, potatoes; S, S, straw; E, E, where we took earth for covering; A, surface of ground.

every thing does outdoors. In fact, I do not know that there is any special need of keeping things just so in a loft in the tool-house. When the weather is good it would not pay to stop too long to put things to rights. Let it be until we have a real bad stormy day, and then fix it up. By the way, Mrs. Root has a short cut for making things look tidy when she has not got ready to make them so. May be she will scold if I tell it, but I will take the chances. Well, when I want to hunt over the pockets of my old clothing, for missing things, and I sometimes remonstrate because I find said room "as dark as a pocket." Her excuse is, that she had not yet had time to slick it up, and so she closed the blinds to prevent anybody from seeing the disorder. It is a quick way of tidying a room up—make it dark.

I need not tell you that nothing on friend Terry's whole farm suffers from being out in the weather. All buildings, and finished wood-work that must be kept outdoors, are kept constantly painted. I thought I had got him once, for there was a stack of straw right out in the weather, in the middle of the field. How do you think it turned out? Why, it was a heap of buried potatoes. He buries his potatoes out in the lot, just as the ground begins to freeze so as to make a crust. He puts on some straw, and then a little dirt, and lets this dirt freeze hard. Of course, the outside covering is straw, to keep the sun from the frozen earth. Along in May, the first covering of the earth may get thawed through; but with the second, as he has it fixed, I have no doubt it could easily be kept frozen solid until June. The consequence is, he has a cold-storage pit just as good as or better than any of the high-priced patent ones. Above is a picture of it. The potatoes are in-

cased in frozen earth, from the time he puts them up until they are planted. In fact, we put our hands down through the straw and felt the frozen earth when I was there. His strawberries were not yet uncovered. I told him mine had wintered so well under the snow that I hardly thought his could be better; but when I uncovered a row or two I had to give up. They had commenced to grow under the straw. The mulch was just enough to protect from alternate freezing and thawing, and yet if you look carefully you could now and then catch a glimpse of the green leaves down through the straw. Another thing, the plants were very nicely thinned out. The matted rows were all covered, and yet in no place were the plants nearer than six or seven inches. I asked what they did with the surplus, and Robert showed me a great pile of dried-up plants up against the fence. If one were selling plants, these might have been planted out, and would doubtless have been worth considerable. But friend Terry does not believe in dabbling in every thing. He could never get his work done, and take things easy if he did so. His clover-fields are just like the strawberries. There was an even, heavy growth all over all his fields. There were no bare spots, and hardly any rank spots. Then there was a beautiful soft rich mulch all over the ground. Why, it almost seemed like woods dirt down between the clover-plants. This is a part of his plan—mowing off the tops of the clover, and weeds (if there were any), and letting them drop down, besides using the straw as a mulch over

the wheat to some extent.

While down near the road I happened to look toward that strip of new fence. It was oak posts and oak boards—good sound oak too. Terry thinks such a fence suits him better, and costs him less, all things considered, than wire or hedge, or any thing else. I expressed some surprise that he had got it so perfectly straight. He remarked that it was Robert's work, and that it was the first piece of fence of that kind that the boy had ever built. He told his father he feared he should not do it as it ought to be; but his father showed him how to set the stakes, and line them exactly, before he commenced setting the fence-posts; and by taking a little pains the boy ran the fence right over quite a hill, and still made it as straight as a string.

We wanted to get into the barn, but it was locked. My friend, did you ever find a barn-door locked, and the key carried off so you could not get in when you wanted to? Friend Terry keeps his buildings locked, but he does not have any keys to bother with. A combination lock, made on purpose for barn-doors, and something that costs less than a dollar, is what he uses. The door was opened quicker than you could take a key out of your pocket, and all the family knew the combination. A stranger would find it harder to get the door open than with almost any padlock made. These locks are made by the Miller Lock Co., Kent, O. I told Mr. Calvert that we certainly must have some, and offer them for sale. Perhaps we may have a notice of them in this number. If you say I am advertising things in the reading-columns, I reply that there are certain things that *ought* to be advertised in the reading-columns, and this is one of the things.

OURSELVES AND OUR NEIGHBORS.

Where shall wisdom be found?—JOB 28:12.

I hope our readers are familiar with the last half of the 28th chapter of Job. I thought I was familiar with it; in fact, it used to be in one of our old readers; and I can remember of the big scholars reading it in school before I was old enough to be able to read it myself. But some way or other it needed—at least for myself—about fifty years of *experience* in human life before I was prepared to comprehend this talk about wisdom. Let us take a verse at a time. "But where shall wisdom be found? and where is the place of understanding?" that is, where are we going to get wisdom? We begin to comprehend the value of wisdom when we have had only a very little experience in this world. A baby creeps up to the stove and puts out its hand. Mamma says, "Burny, burn!" The tones of her voice and the look of alarm in her face tell the young aspirant for wisdom of the danger. He opens his cunning little mouth, and with his blue eyes gazes into the maternal face. He looks at the stove, and then looks at his dimpled, uplifted hand. If he has the average spirit of Young America, in his desire to investigate these strange things that are coming up all around him he often touches the stove *just a little* to see what dire consequences will follow. By and by he learns, perhaps through the medium of a sore finger, that the fire is an excellent thing to warm up the pink toes, but that it is a dangerous thing when either toes or fingers get too much of it.

"Man knoweth not the price thereof; neither is it found in the land of the living." We can not *buy* wisdom with gold. It can be gotten only by *experience*. Books are a great help toward wisdom; but a man who reads his books, and does not put his knowledge into practice, is the laughing-stock of humanity. In the same way, *character* can not be bought with money. Some of our millionaires have tried it. The world is almost as ready to laugh at a millionaire who imagines his *gold* is going to make character when his acts are selfish, low, and bad, as the man who thinks books may answer without experience.

"The depth saith, It is not in me; and the sea saith, It is not with me. It can not be gotten for gold, neither shall silver be weighed for the price thereof. It can not be valued with the gold of Ophir, with the precious onyx, nor the sapphire." The sacred writer, in this beautiful oriental language, emphasizes the fact that wisdom is better worth our labor and pains than all the precious things that are valued by kings and princes. He goes on: "The gold and the crystal can not equal it; and the exchange of it shall not be for jewels of fine gold. No mention shall be made of coral or pearls, for the price of wisdom is above rubies. The topaz of Ethiopia shall not equal it, nor shall it be valued with pure gold."

After the above enumeration the writer comes back to a parallel question to the one in which our text is found; namely, "*Whence*, then, cometh wisdom? and where is the place of understanding?" People long to be wise; in fact, a great many of us take a good deal of pains to make it appear that we are wise. Once in a while somebody makes himself ridiculous—at least to a few who happen to know—by assuming that he knows what he does not know. The most of us have seen people undertake to teach bee culture when they did not know, or had reason to suppose, there was no bee-keeper around. Some of our great professors have

made blunders in this very line—even Agassiz and Tyndall.

I have mentioned to you that, in my early days, electricity was a great hobby of mine. At a time when I was pretty well posted in the science as far as it had made progress, a physician who stood well in our town was summoned to try to bring a child to life that had got hold of a cup of whisky and drank enough to kill it. Somebody suggested that electricity might bring about animation. A crowd of townspeople were very curious about the strange little instrument that made such a buzzing. Now, although the doctor failed in bringing the child to life, he thought that, notwithstanding, the occasion and the crowd would afford him an excellent opportunity for airing his wisdom. He attempted to give a full explanation to the crowd in regard to the coils of wire and the battery attached. Batteries and coils were at that time my daily companions; and as my apparatus was all home-made—in fact, the work of my own boyish hands—I knew a good deal more about it than the doctor did; but his talk on that occasion not only gave me a disgust for that particular doctor, but it came pretty near disgusting me with doctors as a whole. If that man knew as little of the human body as he did of the apparatus before us—a machine that was the work of human hands—how should he be able to help anybody in *any* emergency? No doubt he wanted wisdom; but he did not want it bad enough to make honest explorations in the science before he attempted to teach others.

"Whence, then, cometh wisdom, and where is the place of understanding?" At one period of my life I was for some time somewhat skeptical in regard to Bible teachings. As it began to be known, I was thrown more or less into the companionship of those who openly questioned the existence of God. These people admitted that there were a good many things to be learned in this world of ours; there were hidden mysteries on every hand; and although human intelligence had gone a great way, and had accomplished a great deal, yet these very people were (if they were bright enough) forced to admit that there were unexplored mysteries in every direction. In fact, these people caught a *glimpse* of the fact that what man *does* know is but very little indeed compared with what he does *not* know and may never find out at all. Then comes the question, "If *humanity* does not know, and is perhaps incapable of knowing, *who* does? Who is there, and where is he, this wonderful intelligence that looks on it all and knows it all?" "Where is the place of understanding? seeing it is hidden from the eyes of all living, and kept close from the fowls of the air." Here, again, is a mystery. The fowls of the air know a good many things that we know nothing about at all. A few days ago as I stood in the street, some strange familiar sounds struck my ear. For a while I tried to imagine where it was or when it was that I had heard those strange sounds before. Other people were listening. The sounds came from the heavens above. By the time I had turned my eyes upward the people began to call from one to another, "The wild geese! see the wild geese!" A great flock of them were stretched out like a letter A; and as they moved leisurely through the heavens, away up high in the air, they seemed to be talking to each other on the way. What were they saying? All the sages in the world can not answer. Where were they going? They were going north, because it was spring-time; but we do not know just where, and we can not tell where they got their intelligence that it was safe for them to once more seek their northern home. The strange sounds that revived forgotten memories made me think of

the thousands of geese away up in Puget Sound when I had that pleasant visit with friend March.

Now, then, what sort of *wisdom* is it that says *there is no God*—there is no intelligence in the universe that knows things we haven't learned, and may never learn? Verily, the *fool* saith in his heart, "There is no God."

"Destruction and death say, We have heard the fame thereof with our ears." We look into the faces of our friends when on the death-bed, and we wonder whether or not they could tell us, if they had voice and strength, of the hidden mysteries of the world beyond. Sometimes through their looks we seem to catch a glimpse of the glories beyond; but it is only a glimpse.

"God understandeth the way thereof, and he knoweth the place thereof." It would be a little sad if we were placed here in this world of ours just long enough to comprehend how much there is we do not know, and never can know, to think that there is not an overruling power who knows. The Bible tells us that God understandeth the way. Furthermore, "For he looketh to the ends of the earth, and seeth under the whole heaven; to make the weight for the winds, and he weigheth the waters by measure." Nothing is hidden from him. "Even the winds and the waves obey him." God not only knows, but he fashioned the whole universe, and it is always subject to his bidding. He can at any moment say to any of the elements, "Peace, be still." "When he made a decree for the rain, and a way for the lightning of the thunder, then did he see it and declare it; he prepared it, yea, and searched it out." The above answers some of the questions propounded at the head of our talk—"Where shall wisdom be found?" but yet the conclusion forces itself irresistibly upon us, that the sacred writer has not yet finished. In all his talk he has been approaching a climax. When he says that "God understandeth the way," it satisfies just a little what the listener might have been expecting; but it is not the capstone of the whole of it. "Where shall wisdom be found?" If gold can not purchase it; if neither the depths of the sea nor the heavens themselves can give us the secret, where then shall it be found? Is it any use for us to long for and hope for and labor for wisdom! Yes, indeed it is. The final ending of this beautiful chapter caps the climax; and every time I read it over of late, it seems to me as though it is inspiration from on high. The author of that chapter certainly must have had hold on God himself, or else he never could have framed the concluding verse. See if you do not agree with me as we read it together:

"And unto man he said, *The fear of the Lord, that is wisdom; and to depart from evil is understanding.*"

In olden times, and even at the present time, some would-be sages and scientists seem to imagine that a man can be very *wise* and at the same time very *wicked*; and I have sometimes thought there were men who stood high on account of their skill—say skill in medicine, for instance—men who thought that, because they were skillful and learned, and had a great name, that they were excusable for being wicked. In other words, that it was not as bad for *them* to indulge their intemperate or licentious habits as it was for somebody who did not know so much. God forbid! "The fear of the Lord, that is wisdom." Any kind of wisdom that is not coupled with the fear of God is a poor, miserable, silly thing; and any sort of wisdom that would teach us that, because we are wise, there is less need of departing from our evil ways, is ridiculous. Shame upon the man who thinks that, because he is educated in books, or among men, that he has any better right to persist in

his evil habits. If the present age has not emphatically set its foot down on this sort of philosophy, may God help us to do it speedily.

Now, I am not going to bring the moral of this beautiful chapter to bear only on those who are committing crime. None of us can aspire to true wisdom unless we are careful. We must be *exceedingly* careful if we would be wise. Some of us are in the habit of doing things under a sudden impulse, and then feeling sorry for it afterward. Well, it is a thousand times better to *feel sorry* than to go on wronging people right and left, and not caring any thing about it; but it would be a great deal better still to listen to the voice of wisdom, and thus avoid being *obliged* to feel sorry. Again, some of us can not have any peace of mind unless we apologize for the hasty words we have been heedless enough to let slip. It is right to apologize—in fact, it is an indication of a tender conscience when we can not have peace or rest until we have tried to recall the unwise speech or act. But what do you think about a friend who is wounding you, and then making apologies right straight along? You may think he means well; but in a little while you begin to pity him, and after a while nobody knows exactly when he is himself and when he is *not* quite himself. Imagine how a man's helpers must feel when he comes around and makes a stir about something that is not just according to his notion; and suppose they say to themselves, "Well, now, I wonder whether the boss really *means* what he says, or is he a little off his base just now, and will come around after a little while and apologize for being hasty." The question comes up, "Had we better keep right on as we have been doing, or does he really mean what he said, and is he really going to stick to it?" Why, the employer who lets his feelings and temporary impulses thus run away with him is certainly not wise, and he is hardly fit to be intrusted with help. His changeable moods will not only ruin his business, but they will spoil his reputation in any community.

A few weeks ago I undertook to reprove a hand who needed reproofing. I foolishly said too much, and was too severe. I could not rest until I had made him some sort of apology. I knew from experience that, if I were not careful, I should *apologize* too much, and thus make matters just as bad as or worse than if I had not undertaken to straighten the matter in the first place. For several days afterward I kept thinking how unwise it was to let my feelings or impulses run away with my better judgment—or, if you choose, run away with *wisdom*, or crowd *wisdom* out and make her take a back seat. Yesterday the ground finally became fit to work. It had not rained for as much as four days. Planting was away behind; the horses and the men and boys were all out in the lot. The barometer said it was going to rain, and the Weather Bureau had sent us a telegram saying there would be rain before night. The seeds, with the stakes properly labeled, were out in the lot, and we were waiting for one of the boys to fetch the seed-drill. He came back, saying that a neighbor had borrowed it about two weeks before, and had not brought it back. I remembered then that said neighbor promised to bring it back in a couple of hours, or before night, or something of that sort. I told him, when he wanted it to plant his onion seed, how I had been annoyed by lending that special seed-drill; but he was so sure he would bring it back before I could possibly want it, that I gave away in order to be accommodating. He told the boy he would go right after the drill; but it was several miles away, and therefore we must drop our seeds by hand, or run the risk of being stopped again by another rain. If you have ever

been in such a predicament yourself, you can imagine how provoked I felt. Once more I made huge resolutions that I would stop lending my tools; but I did not say any thing out loud to anybody. The neighbor came up in the field to apologize; but remembering my experience of but a few days before, I resolved that wisdom *should* keep her seat, or, in other words, that *this* time I would be sure not to say any thing that I should regret afterward. Lest I lay too much blame on my neighbor, let me explain that the extremely wet weather probably hindered *him* from getting in his seeds; and he knew, too, that I could not use the drill, for my land was even worse than his on account of the wetness; and as it kept raining he finally forgot about it when the weather did turn around so we could get on our ground.

As I knelt down by my bedside that night, I thanked God for his many mercies of the day. I thanked him *especially* that he had kept me from saying any thing the memory of which would give me pain and keep me awake. As I prepared to lay my head upon my pillow, after the severe work and many cares of the day, I thought, "Oh what a thing is wisdom!" Dear reader, is it not true that it is worth a thousand times more than silver or gold? The feeling that, when you go to sleep at night, you have not wronged any one during the day, and have not dishonored the sacred name of Christ Jesus, whom you profess to follow, is worth more than any thing else that this world has to offer. "Behold, the fear of the Lord, that is wisdom; and to depart from evil is understanding."

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

CHEMICAL FERTILIZERS—DO THEY PAY?

See here, Mr. Root; do you mean to say that all who are using commercial fertilizers are throwing money away, and don't know what they are doing, or are interested in the sale of them? Do you believe that Joseph Harris' recommendation of nitrate of soda was all a selfish one? Is the *Rural New-Yorker* wrong, and teaching what is costing the farmers of the country millions every year? If these things are so, we want to know it. Now, Mr. Root, just read "Chemicals and Clover," Vols. 1 and 2, and then say if you think all these successful farmers are putting tons of fertilizers and thousands of dollars in the ground for nothing.

Did Hale Bros., of Connecticut peach fame, throw their money away when they raised \$25,000 worth of peaches on bone and potash, where no peaches had been raised before? How about Tankage goes up head in the *Rural* of April 8? How is it that many farmers are raising much larger crops of potatoes on fertilizers than Terry is, if his land is already so rich that fertilizer does no good? There must be some other reason besides too rich land. Your soil is doubtless full of nitrogen, from the large doses of barnyard manure you have been using. I find on some soils phosphoric acid is all that is needed; on others, it is potash. I cleared new land last year, and put manure in the hill for corn, with ashes, hen manure, and phosphoric acid; left some rows with no manure; the manured was 50 per cent better than not manured, and the phosphate alone was just as good as where I used ashes and hen manure. On potatoes, nitrate of soda did no good; but cotton-seed meal increased the crop largely—at least a half more than no manure; also more than a \$27.00 complete fertilizer. This was on fairly good

land, manured broadcast with cow manure. Fertilizer has always paid me when used with judgment. I think in time Terry will find his land growing poor in potash and phosphate.

Grand View, Tenn.

A. F. AMES.

[My good friend, such letters as yours are exactly what I want to get; and I have been surprised that I did not get more of them. Yes, I know all the facts that you quote. I have read all about them in the *Rural*, and in "Chemicals and Clover," and in other books—the very things you mention. I have written to the Mapes people, and they have promised to help me out. A bag of the mixture they sent me operates a good deal as guano did; and it costs just as much as guano. I think that, on the whole, however, I should prefer the guano. Now, what gain have we made? This fertilizer costs \$41.00 a ton. In view of the facility with which it may be applied, it may pay on some crops. J. M. Smith, of Green Bay, Wis., says, quoting Mr. Terry's own words from our forthcoming potato-book:

"Fertilizers have never paid me on good or poor land."

You yourself acknowledge that nitrate of soda did no good. Our experiment station says it does no good at all on many crops; and I do not believe they have succeeded in making it pay on *any* crop. I want to see some reports from those who have fertilized, say three rows, and then skipped three rows, and so on through the field. I have done it here in our market-garden repeatedly, with the results I have given you. If I had put it on a whole piece, and then given the fertilizer the credit because the crop was a good one, I might have had many encouraging results. I have had a long talk with friend Terry on this very subject, and he is just as anxious as I am to see it demonstrated that chemical fertilizers are at present cheaper than stable manure, or, if you choose, cheaper than clover. Here is something from another friend:]

800,000 TONS OF NITRATE OF SODA IN A YEAR.

Mr. Root:—I have noticed what you say from time to time of farm chemicals, especially nitrate of soda. If English farmers use 800,000 tons per year, there are surely some places in America where it will pay. WM. H. ALLEN.
Monroe, Mass., May 3.

[Friend A., it would surely seem that nitrate of soda must be a profitable fertilizer, if there is no mistake in the figures you give us; and substantially the same are given in a little book by Joseph Harris. Within an hour I have been applying Mapes potato-manure to two plots of potatoes—one Early Ohio and the other Early Puritan. I instructed my man very plainly that I wanted him to use the potato-fertilizer on only a part of each piece; and I set the grain-drill so the fertilizer would run out when he was about half through. I felt a little anxious, however, and so got around just as he was finishing the piece. He had moved the lever so as to make it feed slower, saying he was afraid there would not be enough to go over *all* the potatoes, if he left it where I placed it. And this is not the first time that I have had just this sort of work. People the world over seem determined to avoid any sort of accurate test. They will scatter their fertilizer over the whole of their land, and then if they get a good crop they will give the fertilizer the credit. The work of the experiment stations brings out the truth sharp and clear, like a beaconlight; and when they are ready to advise the use of chemical fertilizers in the way Joseph Harris and the *Rural New-Yorker* have done, then friend Terry and I will be satisfied that there has not been a blunder made somewhere.]

THE ST. MARTIN RHUBARB.

Mrs. Root fears I gave almost too strong a recommend in our issue of April 15; and to make another test she made two pies—one of the common rhubarb, and one of the St. Martin. The latter was a good deal the better pie of the two, just as I expected it would be. But she explains it in this way: She says that, although she tried hard to make them just alike, she thinks she must have got more sugar in the St. Martin pie; and as the other one did not have sugar enough, it gave the St. M. the advantage. Again, the pie made of the common variety was not only sour, but the juice ran out all over every thing. I urged again that here was where the St. Martin was ahead; but she says she thinks she sprinkled more flour in the St. Martin, so that it took up the juice. Of course, she did not *mean* to do so, but it might have happened that way. This illustrates how difficult it is to decide just what gave the improvement in a pie or in a crop. It takes repeated tests to settle almost any fact decisively. Perhaps I am a little inclined to be in haste to decide that a new variety is an improvement. If so, Mrs. Root is just enough the other way, and this makes us average just about right. By the way, what a grand institution the marriage relation is, any way! But we are talking about pies just now. Our cook at the factory is going to make another test to-day, and then we shall know better. I have pulled the stalks from each, and have eaten them raw: and, to tell the truth, I can not see very much difference. But another factor comes in right here: Different plants of rhubarb of the same variety, and in the same field, show that some are more acid, or tart, than others. Somebody has asked the question whether we could preserve a distinct variety by sowing the seed any way. Won't some of our experiment stations tell us something about it? I once thought I could distinguish St. Martin by the brighter and more vivid red of the stalks; but come to go over our plantation of the common kind, I find there are occasional plants with just as vivid a red as the St. Martin. By the way, does not this whole matter point out a moral? The seedsman who issues a catalogue should be exceedingly careful indeed about saying a variety is an improvement. The St. Martin has not yet gone into our catalogue, and *may be* it never will. A good many seedsmen advertise a new variety, and copy what the originator has said. I protest against this. The seedsman who issues a catalogue ought to have enterprise enough to give any new variety a good test in his experiment grounds before he booms it, or undertakes to push it off on his customers. Just open your seed catalogues and see how many seedsmen there are who will tell you of a new variety, "We have grown this new thing side by side with our best old varieties, and it certainly has advantages as follows," etc. I am afraid a great part of our seedsmen have too much "*business*" on hand to go out into the garden and look after the rhubarb, and have pies made from both kinds, etc.

After dinner.—The St. Martin is certainly ahead in three respects. It has less juice, and is, therefore, not so liable to run over in the oven or after the pie is cut: it is much sweeter, and therefore takes less sugar, and it also has more of a distinct berry flavor than the old varieties.

LAKE-SHORE SAND AS A MULCH.

I am better and better pleased with this every day. We are having dry weather now; and in order to push the cabbage-plants, frequent watering is desirable. It is also desirable to water the beds every time we take up plants to fill an

order. Well, we have always had more or less trouble on account of the baking of the surface of our clay soil, after this repeated watering—especially when the boys got on a little too much water. At times, in fact, our plant-beds would crack open so that one could put his finger down an inch or more—that is, where watering had been badly neglected. Well, the sand works this way: We sift our dirt until it is not only fine and soft, but until the stable manure is thoroughly mixed all through it. After the soil is smoothed off nicely, about half an inch of sand is spread evenly all over the surface. Then the plants are set pretty well down. If the first leaves come under the sand, it will not hurt them a bit, for the sand will not stick, nor soil a leaf of any thing, cabbage or strawberry. Now the surface can not get very dry, for this sand mulching keeps it damp; and when the sand gets real dry it will run into any crack, if there is one, and fill it up. In this condition you can put on almost any amount of water, right in the hot sun, without any danger of cracking at all.

"THE STRAWBERRY CULTURIST, ETC.," ETC.

And now we have a periodical devoted entirely to the culture of the strawberry. It comes only four times a year, however, and the price is only 20 cts. per annum. It seems to me there ought to be at least a hundred thousand people in our country who should take such a journal at so insignificant a price. May be, however, I had better strike off one figure and say ten thousand. Of course, a good deal will depend upon who is editor and how it is managed. The opening number—Vol. I. No. 1—seems to promise very well. Address W. F. Allen, Jr., editor and proprietor, Salisbury, Md. I would suggest that the editor of the paper be a little careful about recommending every new strawberry that comes out. If I were he I think I would take a pretty strong hold on the experiment stations in this matter. Don't let a thing be boomed—at least editorially—until some experiment station has tried it and declares it possesses merit. Not only the matter of growing strawberries, but shipping and selling them, is going to need much consideration and discussion. By the way, I am going to have something to say about a method of raising strawberries where no one ever sets foot on the ground where they are growing. They are to be grown in the plant-beds of which I have already shown you pictures. Sashes and shutters can be used over these beds when need be; weeds can be kept out without tramping among the vines; mulching can be applied; fruit can be picked without ever setting a foot on the ground, and, of course, there will be no setting a foot on the plants or on the berries. The extra labor will be one of the objections; but with every thing purposely rigged for it, there will not be so much extra labor, after all. We have got the thing already going.

BAG-HOLDERS, ETC.

Look here, Dr. Miller, we do have bag-holders. They are standing out in front of the store all the while, mounted on a neat little truck, to carry grain. But when I am in a hurry, bag-holders are not often around. You say, put two hooks in the wall. Well, there is not any wall most of the time. We have regular bag-holders for our mail-bags, and other bags where they are used almost every day. But you see when my wheel is "champing its bits" for a run, and there are only just so many minutes before the mail closes, we can not very well hunt for a bag-holder or a "wall." Why, our little girls out this way just like the idea of holding the bag occasionally, especially when

they understand that it is helping me along. You see, I help them (or at least they think so), and when they have a chance to help me they enjoy it; and I suppose they are feeling considerably elated just now because for once in the world they got ahead of the boss, even if it was on so simple a thing as holding a bag.



Wisdom is more precious than rubies; and all the things thou canst desire are not to be compared unto her.—Pro. 3:13.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

I take GLEANINGS. I never used tobacco except to smoke; but I have quit smoking and never expect to use tobacco again, smoker or not. As you are giving them away I shall be glad to receive one. P. L. DEBO.
Boonville, Mo.

Mr. Thorp has quit the use of tobacco, and promises to pay for a smoker if he ever uses the weed any more. Mr. T. is a bee-keeper, and uses J. M. Jenkins' (or Root) frames. I could not get on without GLEANINGS.
Eupora, Miss., Mar. 17. W. B. ENOCHS.

Reading GLEANINGS has influenced G. J. Potter, Silver Creek, Mich.; and, seeing the folly of the habit, he says he will never use tobacco in any form. But if he ever does I will pay you for the smoker. FLOY POTTER.
Silver Creek, Mich., Mar. 23.

I see in GLEANINGS that you give a smoker away to those who will pledge they will never use tobacco again. I do not chew, but I smoke some. Please send me a smoker and I will certainly pay for it if I do not keep the pledge.
Springfield, Mo., Feb. 21. CHARLIE TRONE.

I send you three names of tobacco-users who say that, if you will send them a smoker, they will quit the use of tobacco; and if they use it any more I'll pay for the smoker. The names are R. T. Miller, J. L. Reed, M. L. Reed. They are all new bee-keepers. G. H. REED.
Anneville, Texas, March 6.

I have been a subscriber to GLEANINGS for six months. Since I commenced reading it I have quit using tobacco. If you are still sending the smoker, please send me one; and if I ever commence using tobacco again I will pay for the smoker. H. GEFERT.
Ballard's Falls, Kan., March 7.

Mr. M. Hoyt, Mossy Rock, Wash., has quit the use of tobacco. I showed him what you said in GLEANINGS, and told him that I would have you send him a smoker. He quit last May, 1892, and hasn't used any since. If you think he is entitled to a smoker, send him one; and if he ever commences the use of tobacco again I will pay you for the smoker. J. H. GAE.
Mossy Rock, Wash.

THE time for holding the next meeting of the N. A. B. K. A. in Chicago, is October 11, 12, 13.

WE are not quite ready yet to give the result of our experiments with electrical uncapping-machines. It is sufficient to state, that Mr. J. S. Reese and ourselves are still at it, and it remains to be seen whether one or both of us will be able to produce any thing of value.

THE *American Bee Journal* for May 4 contains a biographical sketch by Dr. Miller, and some complimentary references, from the editor of that journal, to the senior editor of GLEANINGS. We tender our sincere thanks; but in the mean time we fear that we may never be able to fully reciprocate the kindness of Bros. York and Miller.

WE have not said very much about it of late, but our readers may have noticed that we have been giving eight extra pages ever since the fore part of the year, and the prospects are that we shall have to continue doing so for some time longer. The reason is, a press of good matter awaiting its turn, and a general crowding in the advertising department.

A NEW edition of "Bees and Honey," by Thomas G. Newman, 1893, published by G. W. York, Chicago, is on our table. We notice new engravings scattered here and there through the body of the work, and we presume there have been additions here and there through the reading-matter. It is nicely printed, bound in paper. Price 50 cts. It can be obtained of us or of the publisher.

WE call special attention to the leading article in this number, from the pen of P. H. Elwood, on his mammoth bee-cellar wherein he winters successfully annually over a thousand colonies. If any of our readers have any questions to ask, we hope they will send them on to us, and we will save them up and forward them on to Mr. Elwood. He no doubt will make them the foundation for another and possibly more articles.

WE have just received the May 1st number of the *Progressive Bee-keeper*, published by the Leahy Manufacturing Co., Higginsville, Mo. It comes out in a bright new dress, and the first cover page is a beauty. We are glad to know that the *Progressive Bee-keeper*—a paper that has always been progressive in ideas—gives evidence of being more progressive than ever; and we have no doubt that it will be a valuable medium to bee-keepers, especially south and west. We can club the *Progressive Bee-keeper* with GLEANINGS for \$1.30.

OUR winter losses will aggregate 40 per cent, and many of the surviving colonies are weak. Those colonies, especially the hybrids that were not used for queen-rearing, or that were not otherwise depleted by the filling of nucleus orders, are strong and in good order, showing that, if our business had had been strictly confined

to the production of honey, our losses would have been merely nominal. We know of nothing that presages bad wintering any more than queen-rearing and filling nucleus orders from every colony in the apiary, clear up until cold weather sets in. This is pretty near what we did last fall. By the way, some of the prominent bee-keepers are singularly silent as to their winter losses or successes.

W. G. TITTSWORTH, of Avoca, Ia., sends us two pieces of wide-frame holders that have been entirely riddled by common black ants. The piece is quite a curiosity—in fact, it is a mere shell. Mr. T. says he once had a colony of bees destroyed by them, the ants having made their way into the hive by eating a hole through the bottom of the same. He has also had the same pests eat their way through the wooden crates into the comb honey, ruining it for market. We were not aware before that any ants in the North could or would do such work as this, although we have had many reports of their cutting up similar didos in the South.

SINCE writing our "getatable" editorial on page 362, it occurs to us that we can make our idea more "getatable" by saying that, if you have an idea or invention, first describe briefly in a nutshell the main principle, and then build up around it. If you employ a carpenter to build a house, he first wishes to look at a *general* plan before he is able to understand the detail drawings of the various parts of the house. It would be folly to give him the detail drawings first and let him figure out the general plan of the house later on, if he can. This latter is what some of our correspondents have been doing. If the subject is of that nature, give us a small nucleus, comparing the implement or invention with some common article, after which give the general supplementary matter. Now, dear readers, whenever we do not write in a "getatable" shape (and we acknowledge we are just as guilty as any of the rest of you), please point our gun around toward us.

REPORTS are coming in, showing that the losses from wintering are going to be pretty severe this year—probably greater than any year since the unprecedented bee mortality of 1880-81. Many bee-keepers are discouraged, and are going out of the business. The prospects in California seem to be unusually bright, and the probabilities are that there will be an immense honey crop there this year. The season has opened up again with us after a lapse of three or four weeks of bad weather. The prospects seem to be unusually bright for the survival of the fittest. Those who have wintered successfully will probably secure a good honey crop, and get good round prices. There will be less competition from slipshod bee-keepers, and perhaps less from some who are not slipshod, who are very unfortunate in losing their bees, or, at least, a large portion of them. This, in brief, is the situation after reading hundreds of reports that have come in within the past few days.

So many questions have been coming in of late, many of them already covered in the standard text-books, it seems necessary for us to revive an old department, with the heading, "Answers to Questions from Beginners." Beginners either do not read carefully the text-books, or else those same books are not sufficiently explicit in certain details. As one answer may be valuable to many, we have decided to answer many of the questions in this department that have heretofore received a private answer, even at the risk of going over

old ground already in our A B C and other text-books. Indeed, it may help to make the subject plainer to have it re-stated in different language. We shall not attempt to answer every question, as some of them would certainly be of no general interest; but the great majority will be answered here; and if the querist is not a subscriber of GLEANINGS, he will go without the answer.

It is about time now when bee-keepers can begin to tell definitely how their bees have been wintering. As we wish to make up another batch of statistics for our June 1st number, if possible, showing the mortality during the past winter, we shall be greatly obliged if every one of our subscribers in the United States will send us a postal card answering these two questions: 1. What per cent of your bees have wintered? 2. What per cent of the bees in your locality, as near as you can estimate, have wintered? Now, please do not fill up the card with a lot of other matter, giving the cause of the mortality, etc. Just answer the questions by straight per cents, and nothing more. When we have to average up hundreds of postals, we can not afford to wade through a lot of preliminary matter before the questions are answered. Now, unless you attend to this matter by the next mail, we are afraid you will forget it; and if you do not do it, the report will lose just that much of its value in accuracy.

SOME OLD BEE-BOOKS.

WE have just purchased from the library of W. P. Henderson, of Murfreesboro, Tenn., a large collection of rare and valuable old bee-books. Some of them date back over 230 years. Although these works probably will not give us any "new kinks," they will be valuable as reference, as proving what is old and what is new. Our proof-reader and translator, Mr. W. P. Root, seemed so greatly interested in the great stack of venerable books as they were unpacked, that we asked him to review each one and give a brief digest of them, pointing out such features as may be of interest to the bee-keepers of to-day. As Mr. R. is well versed in the literary features of bee culture, having read the proof of GLEANINGS for the past thirteen years, as well as the foreign journals most of that time, we believe he will be able to give us a rare feast indeed from these old books. We will from time to time reproduce some of the more quaint features of some of them. The review will begin in the June 1st issue, and will, perhaps, continue through four or five numbers.

N. B.—We hope none of our friends will ask us for the loan of these books, as many of them are rare and valuable, and would hardly stand the rough usage to which ordinary mail and express matter is subject.

GUILTY OR NOT GUILTY?

MAY be I am making a mistake, but I think I would follow the advice of friend Moore, on page 385. If all the lawyers in the world, and the rest of the people thrown in, should tell me that it was best to plead guilty when I was entirely innocent of the offense, I think I would stand to the truth, no matter how much money it cost, and no matter if they put me in jail. I suppose people are put in jail who are entirely innocent. I have met some cases of this kind—that is, they were innocent of the offense with which they were charged. They were unfortunate, however (at least they put it that way), in having neither friends nor reputation. Now, the trouble comes in right here: Every real good, straight, square man has, as a rule, plenty

of friends on every side who will spring to his rescue, and effectually stop proceedings—that is, if he is entirely innocent. If he has been partly guilty, or his past records show crookedness in other matters or in like matters, then his friends can not be blamed if they are tardy in hastening to his rescue. This gives us a glimpse of the value of *character*. See text at the head of this department. Something was once said jestingly about putting me in jail. A good friend of mine stood up and said, "Mr. Root, if you go to jail, I go with you." There are people all round about me in whom I have so much confidence that I believe I should rather enjoy saying the same thing of them. Remember this: "Blessed are ye when men shall persecute you and revile you, and say all manner of evil against you falsely, for my sake." Do not leave out the little word "falsely." When you propose being a martyr for righteousness, be very sure that you are entirely innocent in *thought* as well as in deed. A. I. R.

SMOKERS; CAN INDUCED CURRENTS INCREASE FORCE IN BLAST OF SMOKERS?

On page 131 of the last *Bee-keepers' Review*, just at hand, Mr. S. Cornell, in an article, seems to show, in quite an elaborate series of experiments, that a smoker having no connecting-tube between the fire-cup and bellows, as in the case of the Bingham, will give actually a stronger blast, to the extent of 40 or 80 per cent, than a similar one having a connecting-tube—that is, an air-tight tube connecting the bellows with the fire-cup; and then Mr. C. goes on to assume that this increased blast from the first-mentioned kind is due to the "induced current." We regret that, in this experiment, Mr. C. was not using one of the latest Crane smokers. No doubt it was one of the first of that kind that was sent out, and quite a crude implement compared with those we now send out. But leaving out of account for the moment the question of smokers we must say we were greatly surprised at such a statement, coming from a man of Mr. Cornell's scientific attainments. It seems to us that it is only another way of saying that you can make something out of nothing. You can no more *increase force*, without the outlay of additional energy from some other source, as, for instance, heat, than you can pull yourself up by your bootstraps.

Later—After the above was in type we sent a proof of it to the editor of the *Review*; and in his reply thereto he calls our attention to the fact that Mr. Cornell does not assert that extra power is *generated* by the use of the induced current; and that, although he (Mr. C.) says the strength of the blast is increased, he admits, in a previous article, that more energy will be required to work the bellows to do it.

If this is Mr. Cornell's real position, it does not seem to us that his article in the last *Review* proves any thing, because it is simmered down to this: That, if the induced-current smoker requires a *greater* effort of the bellows to secure a *stronger* blast over the Crane, it proves that the latter was hardly given half a chance in the contest. Remember that the tabulated report shows that the induced-current smoker showed the stronger blast. To make it fair to all the smokers, there should be the *same effort* applied to each bellows; the same size of bellows, and same size of smoker-cup, and all should be equally tight.

Mr. Hutchinson also says that the Crane smoker upon which Mr. Cornell experimented was an "old one, made up of odds and ends, and leaking." In view of the fact of its being an old smoker, not one of the new Cranes, and

that *apparently* more effort was used to work the bellows of the Cornell smoker, it seems to us that the experiment should be tried over again. We will gladly furnish a new Crane.

JAKE SMITH'S BOY'S HONEY-PEDDLING MACHINE.

Look here, friends; I have got something to say about that invention. I do not mean that I ever thought of it before, because I didn't. I never thought of such a thing until I saw the picture on page 391; but ever since that picture came before my eyes I have been thinking about it; and my candid opinion is, that Zed has struck on a great invention. Why, if you will give me such a machine, and only a tolerably fair road, and put pneumatic tires and ball bearings on those two back wheels, I will guarantee to take Mrs. Root and the smallest of the children, and give them about as much speed as they can stand. I shouldn't want to go up hill very much, but I think I could stand a moderate incline. No wonder old Jake has stopped his work and sat down with his whip across his knee. The main trouble at the present time is a lack of suitable roads for such a vehicle. Just give me a good road, and I will manage the rest of it. I do not believe anybody at the present time has any sort of conception of what the future will bring forth in the line of that picture. You need not think I have given up carrying the mails because I am not talking about it. We have been behind on orders for plants, you know. Well, a few days ago the train was whistling that should have carried an important shipment of plants. Our clerk in the express room was just saying, as I whirled up on my wheel, "Well, there is no use; A. I. can't carry *that* package, even if he were here." He thought the package was too heavy, and that the time was too short. Said I, as I fetched up before the door, "Bring on your package of plants." It took a minute to get my wire rack in place, and off I started. It was fully half a mile to the new depot. I could have made the crossing before the locomotive did, but my basket slipped once so that I was obliged to get off. As it was, I came up behind the train, handed the basket into the express car with the receipt all made out, just as the train got under way. Give me a smooth road, even though it is a little up grade, and it is only play to make 100 pounds (besides yourself and wheel) just hum.

Almost all my life—at least during my business life—I have longed for something that would enable me to get from place to place faster than I could walk. A horse and buggy might do were it always hitched up and ready; but even then a horse and buggy is unwieldy in getting started and in stopping. Another thing, I can not put my own muscle and energy into a horse. I did not suppose it was possible to find in this world of ours any thing that would fill this long-felt want; but the wheel does the business. Oftentimes I am off at one end of the farm, when I suddenly recollect that I ought to be immediately at the other end. I have learned by experience that it will not do for me to run, even if it were the thing to do; but people have already become so accustomed to seeing me rushing past (faster than a horse) on my wheel, they do not mind it. Nature does not mind it either. I can ride just as fast as I please, and the bad effect produced is seen only on the provisions at dinner-time. The wheel seems almost a part of my make-up, and I begin to wonder whether it was not a part of the plan of the Almighty from the beginning. If so, I am sorry for the people who lived a generation ago. A. I. R.

TRADE NOTES.

HIVE-COVERS.

There seems to be a good deal of misunderstanding as to the exact construction of our double-decked gable cover, as illustrated in our catalogue, and we have therefore prepared some new engravings showing it a little more clearly. The sectional view at the upper left-hand corner of Fig. 3 shows that it is made up

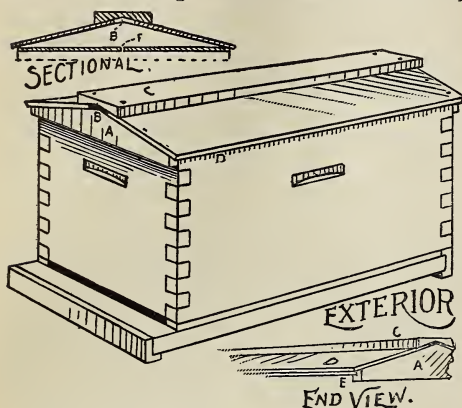


FIG. 3.—ROOT'S GABLE HIVE-COVER.

of 5 pieces of board, 4 of which are of $\frac{3}{4}$ lumber. The longer boards are nailed into the ridge-board far enough apart to leave a gap, as at B. This makes the ventilator—one, of course, being at each end. As it is desirable nowadays to have all the covers flat on the under side, the two shorter $\frac{3}{4}$ boards are nailed to rabbets in the gable-end pieces, as shown at E, end view.

This cover was made in response to a demand from the far western and southern friends—a light, neat, double-decked cover—for something that would be suitable for hot climates, or, at least, more effectual to resist the sun than the old-style flat cover made of $\frac{3}{4}$ boards. The ventilators at B, in the sectional view, are designed to give plenty of top ventilation; and we found in practical experience last summer that colonies under such covers, exposed to the direct rays of the sun, without any shading, were less inclined to cluster out on hot days; and, except in very hot localities, we believe the ordinary shade-board would be unnecessary.

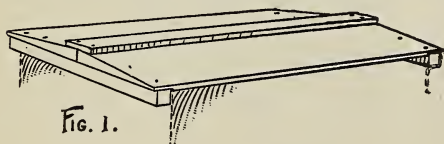


FIG. 1.

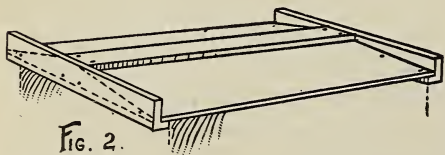


FIG. 2.

THE HIGGINSVILLE GABLE COVER.

Another very excellent gable cover—one that is designed to take the place of the flat cover, is the one devised and made by the Leahy Mfg. Co., of Higginsville, Mo. The idea we considered so good that we asked the firm to send us

a sample cover. We placed the same in the hands of our engravers, and the result we herewith show in Figs. 1 and 2. Fig. 1 shows the regular gable cover, such as the Leahy Co. have been sending out. We have not made any inquiries as to how the same is made; but from a manufacturer's standpoint, we judge that it is made by sawing a $1\frac{1}{4}$ board, a little greater than the length of an ordinary hive-body, and half its width, diagonally through the thickness, in such a way as to leave two pieces, each of which has one side $\frac{1}{4}$ inch thick by $\frac{3}{4}$ on the other. The two thick edges are put together, and cleated as shown in Fig. 1, the point of meeting, or the crack, being covered by an ordinary ridge-piece. The ordinary flat cover, made out of two $\frac{3}{4}$ boards, half the width of the hive, the union of which is covered by a V-shaped strip of tin, is a very poor arrangement—see Dr. Miller's Straws in this issue. Such a cover was designed either as a cheaper substitute for the single-board flat cover, or to do away with the warping. While it may have accomplished the latter, our own experience, as well as that of others, has shown that they leak very badly, and were decidedly a poor piece of economy in the end. The Higginsville model, we judge, would give no trouble from warping; would be perfectly watertight, and, moreover, answer the requirements of those who prefer a single-thickness cover that may be handled with one hand.

Along with the Higginsville gable cover came another sample from the same firm, showing a little different combination—see Fig. 2. The

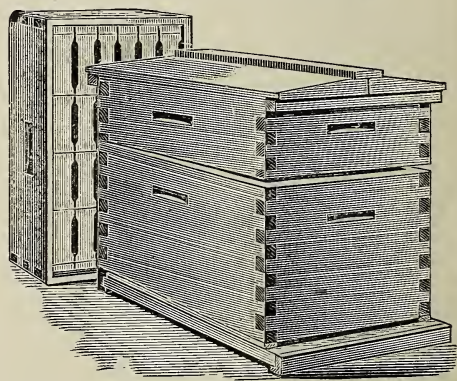


FIG. 4.—HIGGINSVILLE GABLE COVER AND HIVE.

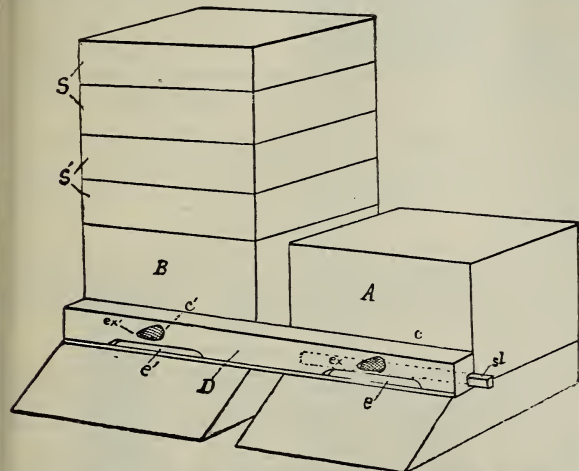
end cleats are rabbeted out as shown. This would really make a stronger cover, and at the same time would allow hives to be tiered up one upon the other. With all the other forms of gable covers, the stacking-up feature is impracticable, especially when heavy hive-bodies are filled up with comb. This is really a minor consideration; but it has weight with some.

THE NEW LANGDON NON-SWARMING DEVICE.

A few issues ago we promised to give a description of this as soon as the inventor was ready to have its details described. He has now given us authority to set forth the principle of its workings, as well as the construction of the device itself. On account of certain engravings not coming to hand, we are unable to publish a very interesting article by Mr. Frank Benton, on the Langdon non-swarming device—an article which appeared in *Insect Life*, issued in April, 1893, by the United States Department of Agriculture, Washington, D. C. For the present, at least, we shall have to content ourselves with a brief description, taken

from the specification of the U. S. patent to be issued to H. P. Langdon, of East Constable, N. Y.

At the beginning of the honey season, when the bees are at work in the super cases, the device is attached to the front of a series of hives, as shown in Fig. 1. The bees will then pass into and out of their respective hives through the entrance apertures *c* and *c'* in the device. By inserting the slide *sl* in the end of the device, as also shown in Fig. 1, the inner entrance of the device will be closed at hive A, thereby excluding the bees from said hive, the flying bees therein being permitted to come out through the conical screen exit *ex*. The super cases of hive A are then placed upon hive B, as shown, which latter hive then holds the super cases of both hives.



THE LANGDON NON-SWARMING DEVICE.—FROM "INSECT LIFE."

The working bees of hive A, finding their entrance closed on their return, are attracted along the gallery by the buzzing of the bees at the entrance *c'* of hive B, and enter said hive. This withdrawal of the working bees from hive A so impoverishes the nurse or brood bees left therein that they will not swarm; meanwhile work is going on without interruption in the super cases on hive B, by the field force of both hives. At the expiration of a few days, the super cases on hive B are all placed upon hive A; the slide *sl* is withdrawn from entrance *c*, thus opening said hive, and is inserted in the opposite end of the device so as to close entrance *c'* to hive B. The bees thus excluded from said hive will be called along the gallery of the device by the bees at entrance *c*, and with said bees will enter hive A, thereby causing the same conditions in hive B as were previously induced in the closed hive A, the flying bees in hive B escaping through the screen exit *ex*. Within a week or so, the super cases are again placed upon hive B, and said hive is opened and hive A closed; then after a few days, said cases are changed back to hive A, and so on alternately between said hives during the honey-flow.

This alternation in reciprocal succession of the working bees between the hives, and the concurrent transfer of the super cases, so disturbs and impoverishes the brood bees in the successively closed hives, that organization for swarming can not be effected, thereby obviating prime swarming, and enabling the field bees of each hive to work without interruption through the entire honey season.

And again, in a letter, Mr. Langdon writes:

There you have the entire management of the whole thing; and the simplicity of the plan in practical use is astonishing.

Besides preventing swarming, more honey can be secured, of a nicer, cleaner quality; no bait combs are needed; the benefits of contraction are realized without extra work of contracting the brood-nest, by expanding the bees, and other important points I might name.

This has all been proven by working the principle

on 100 colonies last year, so I am not making my statements at random.

By following the description carefully, we think most of our readers will be able to catch the idea. The device itself is shown at D, in the figure. It consists of a sort of chamber, the mechanical arrangement of which is such that the entire working force of one hive can be turned into the other every few days by the manipulation of a little slide; and the fundamental principle of the device, as we understand it, is the moving of the entire working force of the hive from one hive to another often enough to prevent cell-building, or to remove, for the time being, those conditions that induce swarming. "For," says Mr. Benton in *Insect Life*, "the immediate condition which incites a colony of bees to swarm has been quite well recognized as its general prosperity—its populousness, the abundance of honey secretion, and crowded condition of the brood-combs, or, in general, such circumstances as favor the production of surplus honey, especially surplus comb honey; and it has, of course, been taken for granted that honey could not be secured if these conditions were changed." And then Mr. Benton goes on to say that these conditions would not be changed, except for the very simple mechanical device invented by Mr. Langdon; and yet the change is not such as to interfere with the production of honey.

What the new device is expected to accomplish is thus explained by Mr. Benton:

The experienced bee-master will not only readily see that this meets the requirements mentioned in the first part of this article as advantageous to secure, but also that in many other ways it is likely to prove a system of great value in the apiary. Mr. Langdon has mentioned some of these, and I will therefore quote from his letter:

1. Two light colonies that would not do much in sections if working separately make one good one by running the field force of both into the same set of supers.
2. No bait sections are needed, as the bees can be crowded into the sections without swarming.
3. The honey will be finished in better condition, that is, with less travel-stain, because the union of the field forces enables them to complete the work in less time.
4. There will be fewer unfinished sections at the close of the honey harvest, for the reason just mentioned.
5. Also for the same reason honey can be taken off by the full case instead of by the section or holderful.
6. Drones will be fewer in number, as a double handful will often be killed off in the closed hive while the other is storing honey rapidly.
7. Artificial swarms and nuclei can be more easily made, as combs of brood and bees can be taken from the closed hive in which the queen can be found very quickly.

As there is, in carrying out this system of swarm prevention, no caging of queens, cutting-out of queen-cells, manipulation of brood-combs, or even opening of the brood-chambers at all during the honey season, and all the vexatious watching for swarms, and the labor and time involved in securing these are done away with, and instead of this a simple manipulation attended to not oftener than once a week is substituted, it is plain that very many more colonies can be managed by one person; and, indeed, Mr. Langdon informs me that he "can care for 200 colonies with one day's work in a week with no help, instead of working all the time with 100 colonies." It will, therefore, prove a great boon to all having numerous out-apiaries.

I wish to say here a word in praise of GLEANINGS. I am so fond of its contents that I can hardly wait its arrival. No sooner does it come than it is eagerly read, not only by me, but by my wife and mother, and I do not wish to have it discontinued as long as I can pay for it, as it is very cheap.

West Braintree, Vt., Mar. 20. PERRY W. SMITH.

ADDITIONAL EDITORIAL.

THE WORLD'S FAIR AT THIS DATE, MAY 15.

WHILE none of us here in the office have as yet made a visit to the great exposition, we have been informed in regard to the way it is going on up to a recent date. I presume many of you are anxious to know whether the stories given in the papers, in regard to excessive charges and extortion, are true. They are partly true, or, at least, *were* partly true; but at the present time I think that at least most of these wrongs have been righted. In fact, the president of the fair himself has taken the matter in hand. The stories about charging for a drink of water are, I think, a mistake. If, however, you insist on having *iced* water, you would probably have to pay something for it. The statement that roast beef costs a dollar, and 10 cents more for a plate to eat it on; a cup of coffee 10 cents, and 15 cents more if you want sugar and milk; extra for a towel when you pay for lodgings, and things of a like nature, were at one time true, I believe, but have been corrected. Of course, this refers to matters *inside* of the grounds. Outside you can get almost any of the necessities of life at pretty nearly the usual price. You can also purchase a cheap lunch-basket, and carry your lunches along with you. Thousands are doing this very thing, with but little trouble or expense. Let us remember that those who have paid for the privilege of keeping restaurants and refreshment-stands on the grounds have paid tremendously; in fact, the amount goes away up into the thousands, and these people may have been afraid that they were not going to get their money back. At the present time, however, a uniform schedule of prices for eatables has been established, and these are furnished to visitors so that every one who takes pains to be posted can tell when he is being overcharged. Plenty of seats are furnished on the grounds, for any one to rest who is weary. Of course, there are many opportunities to pay out money, even after you have paid your 50 cents admission fee. But there is probably more to see and look over, without any extra pay, than the average visitor would get through with in weeks; or if you go into details, it might take months. If one goes with a disposition to find fault, and to complain, he will, perhaps, find enough to grumble about. If he goes for instruction, entertainment, and recreation, and takes a good-natured view of things, he can get enough to pay him over and over again for what the trip ordinarily costs.

My informant, who left the fairgrounds Saturday afternoon, May 13, says there is much greater danger of being swindled by the fakirs and gamblers around the gates outside of the grounds than there is inside. Inside, they are forbidden to ply their swindles; therefore, look sharp. As an illustration: He saw a woman pay a dollar for a stool. The vender persuaded her that none could be had inside of the fairgrounds. When she got to the gate with her stool she found they would not let her carry it through. Furthermore, nice stools were for sale on the grounds for 35 cents; and any time you get tired of carrying it about you can have 25 cents for it back again; so the use of the stool costs you only 10 cents, and when you go away you have nothing to lug about or dispose of if you can.

Railroad fares are reduced, I believe, in every direction. For instance, the regular fare from Medina to Chicago is \$10.00, and the return is the same. You can now get a ticket to the exposition, and return, for only \$13.50. Other

roads, I am told, have made corresponding reductions.

The first Sunday has been passed with the gates all closed, and every thing was quiet and orderly.

Later.—I asked one of our bee-keeping friends, who stopped here on his way to Chicago, to let us know at once in regard to extortionate charges, etc. Here is a postal from him, just at hand:

Mr. Root:—

I think the matter of the visitors to the fair being charged extortionate prices has been greatly exaggerated. Water is free in almost every building, for drinking, and also in toilet rooms, with the exception of a few buildings where they charge 5c for use of toilet rooms. I met Dr. C. C. Miller. He promised to give you a full account of the matter.

Chicago, May 12.

PHIL SESLER.

SPECIAL NOTICES.

COMB FOUNDATION DECLINED.

Please take note of the decline of 3 cents per lb., in the price of comb foundation, mentioned in last issue.

BUSINESS AT THIS DATE.

We are filling orders promptly with but very few exceptions; indeed, so promptly that additions to orders generally reach us after the goods have gone. If you have any additions to make, better send them with the order if you would be in time.

MORE CARLOAD SHIPMENTS.

Since our last report on carload shipments we have shipped the fourth car to Jos. Nysewander, Des Moines, Iowa; have sent two carloads to G. G. Wickson & Co., Los Angeles; a carload of square honeycombs also, to Hook Bros. & Oak, Perris, Cal.; also a carload of hives, sections, etc., to Barteldes & Co., Denver, Col.; and as we go to press we are loading the second car for St. Paul, Minn.: and our friends in that section should apply to H. G. Acklin, 1024 Miss. St., St. Paul, for whatever they need in the bee-line.

THICK AND DIVIDED TOP-FRAMES.

We have in stock some seventeen boxes, each containing 250 L. frames, with ordinary side and bottom bars $\frac{1}{4} \times \frac{1}{2}$, and with divided top-bars $\frac{3}{8}$ in. deep and 1 inch wide, or each piece $\frac{1}{2}$ inch wide. In nailing up these frames it is the purpose to put a piece of foundation, either a starter or a full sheet, between the two parts of the bar, thus clamping it securely. We will close out these frames at \$2.00 per box. For a smaller quantity, which would have to be repacked, \$1.00 per 100.

SLICED SLOTTED SEPARATORS.

We are now making all our slotted separators by sawing them, because we believe them to be stronger and better made in that way, even if they do cost a little more. We have on hand several thousand slotted sliced separators, some of which became slightly discolored in drying. These are $4\frac{1}{2} \times 18$ inches, for use with section-holders. We have also a lot not discolored, the same width, 17 inches long, for use with slotted bottoms for four rows of sections, without blocks at the ends, or such an arrangement as our combined crate. We will furnish either, while they last, at 35c per 100; \$3.00 per 1000, or half the price of the sawed ones.

JAPANESE BUCKWHEAT.

If any of our readers have a surplus of choice Japanese seed for which they desire a market they may do well to submit to us a sample by mail, with name and address attached, so we can tell from whom it comes; also write us, stating the quantity you have to sell, and what you ask for it. If quality is all right, and we can afford to pay the price, we may find among those who order of us some one near you to whom it may be sent at a small expense for freight charges.

We call the attention of those who wish to buy, to our announcement in another column. Please do not order by express unless you are prepared to pay more in express charges than you do for the seed.